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Catalogue 1911-12

Announcements 1912-13

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UNIVERSITY CALENDAR

1912-1913

1912—September 17, *Tuesday*.....Summer Recess ends.
Examinations for Admission.
Registration of Students.
September 18, *Wednesday*.....First Semester begins.
October 5, *Saturday*.....Re-examinations.
October 5, *Saturday, 2:30 p. m*.....Meeting of General Faculty.
November 18, *Monday*.....Farmers' Short Course begins.
November 27, *Wednesday, 5:30 p. m*Thanksgiving Holiday begins.
December 1, *Sunday, 7:00 p. m*....Thanksgiving Holiday ends.
December 14, *Saturday*.....Farmers' Short Course ends.
December 21, *Saturday, 11:30 a. m*..Christmas Recess begins.

1913—January 4, *Saturday, 9:00 a. m*.....Christmas Recess ends.
January 29, *Wednesday*.....First Semester ends.
January 30, *Thursday*.....Second Semester begins.
February 8, *Saturday, 2:30 p. m*....Meeting of General Faculty.
February 17, *Monday*.....Spring Term for Teachers begins.
February 22, *Saturday*.....Field Day.
March 1, *Saturday*.....Re-examinations.
May 31, *Saturday, 2:30 p. m*.....Meeting of General Faculty.
June 1 to 3.....Commencement.
June 1, *Sunday*.....Baccalaureate Sermon.
June 2, *Monday*.....Oratorical Contests.
June 3, *Tuesday*.....Graduating Day.
June 4, *Wednesday*.....Summer Recess begins.
June 6, *Friday*.....Examinations for Admission.

1912 CALENDAR 1913

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Dean of the College of Engineering.

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J. R. WATSON, A.M.,
Entomologist.

H. E. STEVENS, M.S.,
Plant Pathologist.

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Associate Chemist in Charge.

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O. F. BURGER, M.S.,
Assistant Plant Pathologist.

S. S. WALKER, M.S.,
Assistant Chemist.

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U. C. LOFTIN, B.S.,
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J. B. GRIFFITH, B.S.,
Laboratory Assistant in Plant Pathology.

F. M. O'BYRNE, A.B.,
Laboratory Assistant in Plant Physiology.

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Assistant Superintendent of Farmers' Institutes.

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Assistant in Extension Work.

K. H. GRAHAM,
Auditor and Bookkeeper.

G. E. PYLE,
Physical Director.

M. B. HADLEY, A.B.,
Librarian.

OSCAR E. BAYNARD,
Curator of Museum.

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Matron.

MISS L. BRAMLETT,
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T. S. TRANTHAM,
Recording Secretary.

JESSIE URNER,
Secretary to the Experiment Station.

KATE BOULWARE,
Stenographer to Extension Work.

MRS. M. B. KEELOR,
Director of Glee Club.

A. G. COLCLOUGH,
Foreman of Model Farm.

M. CREWS,
Foreman of Experiment Station Farm.

A. L. COFFEE,
Superintendent of Buildings and Grounds.

STANDING COMMITTEES OF THE FACULTY

1912:1913

The President of the University is *ex officio* a member of all Standing Committees.

ATHLETICS
Professors Seeley, Crow, Trusler, and Walker.

DISCIPLINE
Professors Flint, Cox, Farrah, and Walker.

ENTRANCE EXAMINATIONS
Professors Farr, Keppel, Anderson, Bernard, and Davis.

GRADUATE WORK
Professors Anderson, Cox, Benton, Davis, Keppel, and Vernon.

LIBRARY
Professors Bernard, Farr, Crow, Benton, Maltby, and Mr. Hadley.

PUBLIC FUNCTIONS
Professors Crow, Anderson, Davis, and Floyd.

PUBLICITY
Professors Crow, Floyd, Keppel and Bernard,.

SCHEDULES
Professors Cox, Keppel, and Flint.

SELF-HELP
Professors Floyd, Wiechardt, Davis, and Vernon.

STUDENT ORGANIZATIONS
Professors Cox, Dickinson, and Farr.

UNIVERSITY PUBLICATIONS
Professors Farr, Keppel, and Benton.

MILITARY ORGANIZATION

COMMANDANT

Major E. S. Walker, U. S. A., *Retired.*

FIELD, STAFF AND NON-COMMISSIONED STAFF

R. R. Taylor ..... *Major*
L. B. Thrasher ..... *First Lieutenant and Adjutant*
F. G. Davis ..... *First Lieutenant and Quartermaster*
T. B. Bird ..... *Sergeant-Major*
R. B. Wilson ..... *Quartermaster-Sergeant*

FIELD MUSIC

W. M. Hatcher and T. E. Price.

COMPANY "A"

A. G. Shands ..... *Captain*
L. E. Tenney ..... *First Lieutenant*
R. L. Jarrell ..... *Second Lieutenant*
E. T. Casler ..... *First Sergeant*

Sergeants

L. R. Morgan
J. C. Tinny
R. P. Henderson
G. C. Crom

Corporals

F. M. Swanson
U. Blount
C. C. LaRoche
N. Barrs
J. H. Knowles
A. E. Booth

COMPANY "B"

J. A. Howze ..... *Captain*
L. S. Laffitte ..... *First Lieutenant*
W. G. Elliott ..... *Second Lieutenant*
T. J. Swanson ..... *First Sergeant*

Sergeants

M. C. McNeill
C. A. Rowlett
R. R. White
W. H. Crom

Corporals

M. G. Horton
J. J. Bennett
D. L. White
N. A. Becker
F. W. L. Hill
P. C. Rader

GIFTS TO THE UNIVERSITY

The educational facilities of many of the State institutions of the South have been materially increased in recent years by substantial gifts from broad-minded citizens. The University feels confident that the citizens of Florida will not allow their State institution to suffer in this respect. All gifts to the University, of whatever nature or size, will be gratefully received and acknowledged as contributions to the upbuilding of education and culture in the State.

Chair of Secondary Education.—This opportunity is taken of acknowledging the generous gift of fifteen hundred dollars ($1,500) by the General Education Board of New York toward the establishment and annual maintenance of a Professorship of Secondary Education in the University.

The Athletic Field.—The University gratefully acknowledges a generous gift from a friend (whose name is withheld by request), to be used towards the equipment of the athletic grounds.

Chair of Elementary Education.—The Southern Education Board, by a gift of twenty-seven hundred and fifty dollars ($2,750), has provided for the salary of a Professor of Elementary Education, in the University, and Supervisor of Rural Schools, under the direction of the State Superintendent of Public Instruction. While this gift is made directly to the State Department of Public Instruction, the University participates largely in its benefits and here makes grateful acknowledgment of the same.

Scholarships.—Two scholarships have been recently added to those formerly offered by the University. There is no method of contributing to the spread of higher education in our State wiser or more beneficent than this, which gives a worthy and ambitious young man the opportunity to avail himself of the advantages offered by his State University; and the establishment of the two following scholarships is gratefully acknowledged:

Children of the Confederacy Scholarship.—The Florida branch of the Children of the Confederacy, through the efforts of Sister Esther Carlotta of the United Daughters of the Confederacy, has established a scholarship paying one hundred and twenty dollars

($120.00) per annum, to be awarded to a lineal descendant of a Confederate soldier.

High School Scholarship.—A distinguished citizen of Escambia County, desiring to bring about a closer affiliation between the senior high schools and the State University, has established a scholarship, tenable for four years and yielding two hundred dollars ($200.00) a year, to be awarded to a graduate of a senior high school, preferably of that of Escambia County.

The Dupont de Nemours Powder Company, of Wilmington, Del., has presented to the University a collection of the various powders and explosives manufactured by them, put up in fine display cases, and forming a valuable addition to the technical chemical collection.

Georgia Southern & Florida Scholarship.—The University makes grateful acknowledgment of a scholarship bestowed by the Georgia Southern & Florida Railroad, through Mr. M. V. Richards, the Industrial Agent of the Southern Railway System. This scholarship pays two hundred dollars ($200) per annum and is tenable for four years. It will be granted only to applicants residing in counties traversed by the G. S. & F. Railway.

The successful applicant will be required to pursue his courses in the College of Agriculture, University of Florida, and must be prepared for admission to the Freshman Class in that college. Further particulars relating to this scholarship may be obtained from Mr. M. V. Richards, Industrial Agent, Southern Railway, Washington, D. C., or from Dean J. J. Vernon, College of Agriculture, University of Florida, Gainesville, Florida.

The George Peabody Hall for Teachers.—The State University and Commonwealth of Florida here record their grateful appreciation of the gift of forty thousand dollars ($40,000) from the Peabody Board of Trust, and acknowledge their further debt of lasting gratitude to the South's great benefactor, George Peabody, for whom the building is to be named. This sum is to be used for the erection of a building to be devoted exclusively to the training of teachers for the public schools of Florida. Through this generous bequest the State is now prepared to offer, at the University, the best facilities for the training of superintendents, high school principals, and teachers for every grade of the public school system.

GENERAL INFORMATION

HISTORY

The University of Florida, as it now exists, represents the culmination of a movement which originated in territorial days.

The subject was discussed in the Legislative Council as early as 1824. In the Memoirs of Florida we read: "In 1836 a University of Florida was proposed, of which Joseph M. White, Richard K. Call, Thomas Randall, J. G. Gamble, and others, were named as trustees, in the Act of Congress which authorized the sale of lands for its support." (I, 168.) This is the first official mention which we find of a "University of Florida." Nothing, however, came of this proposal.

Between this time and the Civil War the movement for public education, both lower and higher, grew considerably in the State. In 1845, when Florida was admitted to Statehood, she received from the general government nearly a hundred thousand acres of land for the establishment of two seminaries, one east and one west of the Suwanee River. The East Florida Seminary was established in 1852. It was first located at Ocala, but in 1866 removed to Gainesville. The West Florida Seminary was established at Tallahassee in 1856. However, during this period, no institution in the State bore the title and exercised the functions of the University of Florida.

The State Constitution, adopted in 1868, contained the following provision looking to the establishment of a State University: "The Legislature shall provide a uniform system of common schools *and a University*, and shall provide for the liberal maintenance of the same. Instruction in them shall be free." (Art. VIII, Sec. 2.)

Pursuant to this action, the Legislature of 1869 passed "An Act to Establish a Uniform System of Common Schools and a University." Two sections of this Act are of particular interest.

It is proposed in Section 11:

"6th. To use the available income and appropriations to the University or Seminary Fund, in establishing one or more departments of the University at such place or places as may offer the

best inducements, commencing with the Department of Teaching and Preparatory Department, etc.

"7th. To keep in view the establishment of a University on a broad and liberal basis, the object of which shall be to impart instruction to youth in the professions of teaching, medicine and the law; in the knowledge of the natural sciences; the theory and practice of agriculture, horticulture, mining, engineering, and the mechanic arts; in the ancient and modern languages; in the higher range of mathematics, literature, and in the useful and ornamental branches not taught in common schools."

The plan outlined in this section would be a credit to any State, and shows a high ideal and purpose of which Florida may well be proud. But, unfortunately, this ideal and purpose found no tangible manifestation; and the State still continued without a University.

The State Constitution of 1885 contains the following: "The Legislature shall provide by general law for incorporating such educational, agricultural, mechanical, mining, transportation, mercantile, and other useful companies or associations as may be deemed necessary; but it shall not pass any special law on any such subject, and any such special law shall be of no effect; *provided*, however, that nothing herein shall preclude special legislation as to a University or the public schools, or as to a ship canal across the State." (Sec. 25.) This action was taken in the summer of 1885.

In the spring of the same year (February 16, 1885) the Legislature had passed "An Act Recognizing the University of Florida," which reads as follows:

"*Section* 1. That the Florida University, as organized at the City of Tallahassee, be recognized as the University of the State, and be known as the University of Florida; *provided*, there shall be no expense incurred by the State by reason of this Act.

"*Sec.* 2. That the University continue under its present organization and officers until such further action be taken by the State Legislature as the case may require."

It will be observed that this is "An Act *Recognizing* The University of Florida." This phraseology is due to the fact that two years before this Act was passed (*i. e.*, in 1883) the State Board of Education had formulated a plan of consolidation or

co-ordination, in accordance with which the West Florida Seminary was denominated "The Literary College of the University of Florida." Accepting this action of the State Board, the Legislature passed this "Act *Recognizing* the University of Florida." It seems probable, however, that the State Board had originally in view a somewhat different plan from that which found expression in this Act of the Legislature.

Meanwhile, in 1870, the State Legislature had passed "An Act to Establish the Florida Agricultural College," in accordance with the Act of Congress of 1862, entitled "An Act Donating Public Lands to the Several States and Territories which may Provide Colleges for the Benefit of Agriculture and the Mechanic Arts."

For the support of such institutions *Section* 1 of this Act grants to each State "an amount of public land, to be apportioned to each State in quantity to equal thirty thousand acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of 1860; *provided*, that no mineral lands shall be selected or purchased under the provisions of this Act."

In *Section* 4 it is required "that all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, *shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per centum upon the par value of said stocks;* and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided in *Section* 5 of this Act), and the interests of which shall be inviolably appropriated by each State which may take and claim the benefit of this Act, to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life."

Section 5 defines the obligations which the States assume in accepting these grants.

"*First. If any portion of the fund invested*, as provided by the foregoing section, or *any portion of the interest thereon, shall*, by any action or contingency, *be diminished or lost, it shall be replaced by the State to which it belongs* so that the capital of the fund shall remain forever undiminished; and *the annual interest shall be regularly applied without diminution to the purpose* mentioned in the fourth section of this Act, except that a sum not exceeding ten per centum upon the amount received by any State under the provisions of this Act may be expended for the purchase of lands for sites or experimental farms, whenever authorized by the respective Legislatures of said States.

"*Second.* No portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings."

Section 8 further stipulates "That the Governors of the several States to which scrip shall be issued under this Act shall be required to report annually to Congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds."

In 1870, as already stated, the Legislature of Florida, by an Act entitled, "An Act to Establish the Florida Agricultural College," accepted the Federal grant upon the conditions and under the restrictions contained in the Act of Congress quoted above, and thereby entered into a *contract* with the United States Government to erect and keep in repair all buildings necessary for the use of the institution.

After decreeing the establishment of a college in accordance with the Congressional requirements and appointing trustees for its control, this Act (*Section* 7) authorizes the trustees "to claim and receive from the Secretary of the Interior the agricultural college land scrip to which this State is entitled by Act of Congress, July 2, 1862, and Acts supplemental thereto."

Section 8 prescribes the disposition of the funds: "Ten per centum of the proceeds of the sale of the scrip, or of the land, may be expended for the purpose of a site for an experimental farm. The remainder of the proceeds shall be *invested in stocks of the United States, or of some of the States of the Union, bearing an annual interest of not less than six per centum on their par*

value, and shall remain a permanent fund forever. The annual interest of the fund shall be regularly applied *without diminution* to the purposes set forth in *Section* 2 of this Act. Donations may be made for specific purposes, and shall be applied to the objects for which they were granted."

Section 9 provides that "No portion of the principal or interest of the fund shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repairs of any building or buildings, or for expenses incurred in selling the scrip, locating the lands, or in managing the funds of the lands."

In 1872 an Act supplementary to the Act of 1870 was passed; and the State, having availed herself of the Act of 1862, received ninety thousand acres of land. The proceeds from the sale of this land were invested in "The Agricultural College Fund" bonds, the par value of which is one hundred and fifty-three thousand and eight hundred dollars ($153,800).

In 1873 a site for the college was selected in Alachua County, but nothing further came of this step. In 1875 the college was located at Eau Gallie, and a "temporary college edifice" was erected. No educational work having been accomplished there, the trustees, in 1878, determined to remove the college, and a committee from the Board was appointed to decide upon a suitable situation. In 1883 Lake City was selected on account of its special fitness; and, the citizens having given to the institution one hundred acres of land and fifteen thousand dollars ($15,000), the college was established there. Upon the completion of the main building in the fall of 1884, the doors of the institution were thrown open to students.

In the second catalogue of the new institution, dated "June, 1887," we find in the roster of the faculty "Rev. J. Kost, LL.D., Professor of Moral Philosophy and Geology, and Curator of Museum." And foot-note adds: "Rev. J. Kost, LL.D., is also Chancellor of the University of Florida." The exact nature of the relationship indicated by this statement may be inferred from the following statement, which is found in the same catalogue (1887):

"At the annual meeting of the Board of Trustees of the Florida Agricultural College, held at the College, at Lake City, June 17, 1886, the following resolution was adopted:

"*Resolved*, That the Board of Trustees of the Florida Agricultural College believe that the educational interests of this State would be advanced and furthered by the consolidation of the Agricultural College and the Florida University, under the name of the University of Florida and Agricultural College, and that we recommend the same."

In the catalogue of the Agricultural College for the following year, the statement that Dr. Kost is "Chancellor of the University" is dropped; but the resolution quoted above is again printed. The following year the resolution also disappears; and the idea therein contained seems to have become quiescent.

About this time (*i. e.*, in 1887), in accordance with the Act of Congress, known as the Hatch Act, the Florida Agricultural Experiment Station was established in connection with the State Agricultural College.

Three years later the Agricultural College became a beneficiary of the Morrill Act. The expenditure of this sum is carefully restricted by the Act of Congress which provides it and which specifies the purpose for which it may be employed.

As regards the name of the institution, matters continued in this condition until 1903. In that year the Legislature passed "An Act Changing the Name of the Florida Agricultural College." The title of University had never been assumed by the institution at Tallahassee under the provisions of the Act of 1885; and in 1903 that Act was repealed and the title was transferred to the Agricultural College. The Act of 1903 reads as follows:

"*Be It Enacted by the Legislature of the State of Florida:*

"*Section* 1. That the Florida Agricultural College, as at present defined by law, be and is hereby, changed to and shall be known as the University of Florida.

"*Sec.* 2. Any law inconsistent herewith be, and the same is hereby, repealed.

"*Sec.* 3. This Act to take effect upon its passage and approval by the Governor." (Approved April 30, 1903.)

In accordance with this Act the Agricultural College at once assumed the title of the University of Florida, and continued its activities without interruption for two years.

The year 1905 is memorable in the history of higher education in the State. Besides the former Agricultural College, then bear-

ing the title "University of Florida," at Lake City, there existed five other institutions of higher education, all depending upon State support for their funds. They were: the Florida State College at Tallahassee, the Normal School at DeFuniak Springs, the East Florida Seminary at Gainesville, the South Florida College at Bartow, and the Agricultural Institute in Osceola County. These institutions had failed to make sufficient differentiation among themselves and to separate their work sufficiently from that of the high-school system of the State. By an Act of the Legislature of 1905 this system of higher education was drastically revised. The six institutions were reduced to two, clearly differentiated from each other and from the high schools.

This Act (known as the "Buckman Bill") created two coordinated institutions; one for women at Tallahassee, first designated the "Florida Female College" and later the "Florida State College for Women;" and another for men, to be known as the "University of the State of Florida." For their management the Act provides:

"*Sec.* 13. That there is hereby created a 'Board of Control,' which shall consist of five citizens of this State, who shall be appointed by the Governor and their terms of office shall be for four years, except that, of the first board appointed under this Act, two members thereof shall be appointed for the term of two years and three members thereof shall be appointed for the term of four years."

The University of the State of Florida, thus established, began its scholastic work in September, 1905.

By Act of the Legislature of 1909, the name of the institution was changed to the *University of Florida.*

LOCATION

Acting under a provision of the Buckman Act, to-wit:

"*Section* 16. The Governor, as President of the State Board of Education, shall cause a meeting of both of said boards to be held in joint session at the capital, and at said meeting shall determine the place of location of the University of the State of Florida, etc."

The State Board of Education and the Board of Control in

joint session, on the sixth day of July, 1905, selected the City of Gainesville as the location for the new institution.

During the scholastic year 1905–06, the work of the University was carried on at Lake City, while buildings were in process of erection for its accommodation at Gainesville. The University moved into these buildings during the summer of 1906, and the work of the Institution has since been conducted at Gainesville.

The advantages which Gainesville presents as the seat of the State University are numerous. It is centrally located and of easy access, being reached by the leading railroads of the State. It has well paved, lighted and shaded streets; the water-supply is exceptionally pure, and the sewerage system good. The citizenship is energetic and progressive, and frequently extends the hospitality of its homes to the students. The Chautauqua and Bible Conference held during the winter are valuable adjuncts to the University. The moral atmosphere is wholesome, and for many years the sale of intoxicants has been prohibited by law.

GROUNDS AND BUILDINGS

The domain of the University comprises five hundred and eighty-nine acres, situated in the western extremity of the town of Gainesville. Of this tract, ninety acres are devoted to the University campus, drill ground, and athletic field. One hundred and seventeen acres are utilized for a demonstration farm, under the direction of the College of Agriculture of the University. The remainder of the land is used by the Agricultural Experiment Station.

The buildings of the University are at present seven in number: two dormitories, known as "Buckman Hall" and "Thomas Hall;" Science Hall; the Agricultural Experiment Station Building; Engineering Hall; the Mechanics Arts Shop; and the Gymnasium. They are lighted with electricity, supplied with city water, and furnished with modern improvements. In addition to these, there are now in course of erection an Agricultural College Building, and a dining hall or "University Commons;" and plans are being prepared for a Language and History Building, and for a Teachers' College and Normal School Building, the funds having been appropriated for their construction.

The two *Dormitories*, Thomas Hall and Buckman Hall, are brick and concrete structures, three stories in height, sixty feet in width and three hundred and two hundred and forty feet, respectively, in length. They are built in fireproof sections, each containing twelve suites of dormitory-rooms and on each floor of each section a shower-bath, lavatories and toilet. At present three sections of "Thomas Hall" are being used for the library, dining hall, assembly hall, and lecture and laboratory rooms. The other sections are occupied by the students.

Science Hall is a brick and concrete building of two stories and a finished basement, one hundred and thirty-five feet long and sixty-six feet wide. It contains the class rooms and laboratories of the Departments of Botany and Horticulture, Chemistry, Physics, and Zoology and Bacteriology.

The *Experiment Station Building* is a brick and concrete structure, of three stories and a finished basement, one hundred and twenty feet long and sixty feet wide. It contains the offices and laboratories of the Agricultural Experiment Station.

Engineering Hall is a brick and terra-cotta structure, three stories high, one hundred and twenty-two feet long and seventy-three wide, providing offices, class rooms, laboratories, and drafting-rooms for the Departments of Civil Engineering, Electrical Engineering, and Mechanical Engineering.

The *Mechanic Arts Shop* is a one-story brick building, sixty feet long and thirty feet wide, with a wing thirty feet long and twenty feet wide. It provides for the shop work in the engineering courses.

The *Gymnasium* is a temporary wooden structure, one story high, sixty feet long and forty feet wide. It is provided with equipment for physical training; lockers, showers, and a swimming pool are to be provided during the coming summer.

The *Agricultural College Building*, which is now rapidly reaching completion, is to be a brick and concrete structure three stories high, one hundred and fifteen feet long and sixty-five feet wide. The building provides for class rooms, laboratories and offices for the Departments of Agronomy, Animal Husbandry, and Extension Work. One-half of the second floor will be given up for the present for a general assembly hall.

The *University Commons*, now under construction, is to be a brick building of one story and a basement, one hundred and fourteen feet long and forty-two feet wide, with a wing forty-nine feet long and twenty-seven feet wide. It will provide a large dining hall and kitchen.

The *Language and History Building* is to be a brick and terra cotta structure of three stories, one hundred and thirty-five feet long and sixty-six feet wide. It is to be the home of the College of Arts and Sciences, and will provide class rooms and offices for the Departments of Languages, History, and Mathematics, together with the administrative offices of the University, and rooms for the use of the literary societies and the Young Men's Christian Association. It is expected that the contract for its construction will be let about July 1, 1912.

The *Teachers' College Building*, to be known as "George Peabody Hall," is to be constructed with funds given by the Peabody Board of Trust. It is to be a brick building three stories high, one hundred and thirty-five feet long and seventy-two feet wide, and will provide for the Departments of Education and Philosophy, and for the Teacher Training Work of the University.

Value of the University Property.—The value of the property used for the work of the University reaches about $600,000, including buildings not yet completed, but whose construction has been authorized.

ENDOWMENT

The annual income of the University, apart from legislative appropriations, is derived principally from three sources—"The Agricultural College Fund" bonds, yielding an annual interest of about seventy-seven hundred dollars ($7,700); one-half of the "Morrill Fund," amounting now to twelve thousand five hundred dollars ($12,500), and the "East Florida Seminary Fund," amounting to about two thousand dollars ($2,000). In addition to these funds, Congress has appropriated $25,000 more to each State for the purpose of promoting the work of institutions already beneficiaries of the Agricultural and Morrill Funds. One-half of this amount goes to the University of Florida.

The entire annual income of the institution thus derived from various Federal grants amounts to thirty-four thousand and seven hundred dollars ($34,700). This does not include the Experiment Station funds.

EQUIPMENT

LIBRARY.—The University Library numbers about 12,500 volumes, including those in the Academic, Law and Scientific Departments. In the Academic Library, besides general works, are 175 volumes on philosophical subjects, 320 on economics, 160 on education, 1,800 of literature, 840 of general history and biography, and 230 of United States history. An effort is being made to place on the shelves all books extant relating to Florida history. Additional books are purchased under the direction of the library committee as fast as funds are available for that purpose.

In 1911 the State Legislature appropriated five thousand dollars ($5,000) for new books. That amount is now available and will be expended during the fall of nineteen hundred and twelve, after the Faculty have devoted the summer months to adjusting the needs of their departments to the sum on hand, and at the same time give the student the best possible working library.

All books in this library are catalogued and shelved according to the Dewey system, making them readily available for reference. Students are encouraged to use the card catalogues, which are arranged alphabetically, both according to authors and to subjects, and to become familiar with the books themselves by free access to the stacks. The librarian or student assistants are always in attendance to explain the arrangement of books and to give aid in reference work. A taste for good literature is being developed in many students who have not had access to a good library before coming here, making this one of the great advantages of the college career.

As a designated depository of Federal documents, the library receives several hundred volumes of valuable government publications each year. Files are kept of all Florida State publications, and of the bulletins and reports of the Agricultural Experiment Stations throughout the Union.

In the reading-room are about seventy of the best general and technical periodicals for the students' use. The back numbers of these are bound and kept on file, and the early volumes purchased whenever they can be obtained. Here also are received the leading newspapers of the State, and county papers are added to the list at the request of the students.

MUSEUM.—The museum occupies a large room on the second floor of the new Science Hall, and contains a small but well-selected collection of minerals; a number of fossils and casts, and a small but representative collection of the lower forms of marine life. Special efforts are being made to get together as complete a collection as possible illustrating the fauna of the State.

LABORATORIES.—The following laboratories are maintained by the University:

The Botanical Laboratory contains enough dissecting microscopes and instruments, and Bausch and Lomb compound microscopes, magnifying from 80 to 465 diameters, for the individual use of the students.

There is a Zeiss binocular microscope, a large compound microscope of very high magnifying power, two demonstration microscopes, and a McIntosh stereopticon, with projection microscope attachment.

For work in histology there are hand microtomes, section knives, a sliding microtome, Millers' paraffin bath, and a supply of reagents, stains and mounts, while for studies in physiology there are germination boxes, nutrient jars, an osmometer, a clinostat, and a number of other pieces.

An herbarium has been started, to which students each year add specimens which they collect, identify and mount. There is a case of reference books and periodicals in the laboratory, that it may be within easy reach of the students.

The Chemical Laboratory is equipped with all the necessary apparatus and material for instruction in general inorganic and organic, analytical and industrial chemistry, as well as for advanced work in the science. It includes two delicate balances, a latest model polariscope, microscope and spectroscope, ample platinum ware, in the form of crucible dishes, electrodes, wire and foil, and many special pieces of apparatus for illustrating (upon the lecture table) chemical principles.

The equipment is entirely modern in every respect and in the new rooms assigned to this department can be used to the best advantage. The stock of chemicals is abundant and complete.

The Dynamo Laboratory, providing for practical instruction on electrical machinery, occupies a portion of Engineering Hall.

The principal machines are a 10-KW Type ACS General Electric synchronous converter, a 2.5-KW General Electric Type IB direct current generator, a 1-HP Westinghouse Type R motor, a 1-KW synchronous motor, and two 2-KW Westinghouse Type S dynamos, designed to be used either as generators or as motors. The switchboard panel for each machine is placed near it, but is connected to terminals on a main distribution board for the whole laboratory. Power is supplied by a 10-HP single-phase Wagner induction motor, connected to the city alternating current supply, and driving the main shaft of the laboratory. The various machines are driven from this shaft, and can be thrown in or out by friction clutches.

The laboratory is also supplied with transformers, several types of arc lamps, and numerous measuring instruments of different ranges, chiefly of Weston make.

The Physical Laboratory is well equipped with apparatus, and meets the needs of such undergraduate work in physics as is usually carried on in the best American colleges. The western half of the ground floor of Science Hall is devoted to the Department of Physics. Its quarters include a lecture-room, 25 feet by 23 feet, with amphitheatered seats; an office and library room; a main laboratory room, 28 by 25 feet; an electrical laboratory, 30 by 14 feet; a battery room; an optical room, 23 by 10 feet, arranged so as to be effectively darkened; a work-shop; a store-room; and a private laboratory room, for research work. Water, gas and electricity from various circuits, are led to all of the rooms. The laboratory is provided with several brick piers, on foundations independent of the rest of the building, for the accommodation of instruments requiring special stability.

The Zoological and Bacteriological Laboratories are well equipped for the work of instruction. In addition to the necessary glassware and reagents, there are a number of high-grade microscopes; dissecting microscopes; two microtomes, one for celloidin, the other for paraffin sectioning; paraffin bath; steril-

izers, both wet and dry; warm and cool incubators; dark-ground illuminator; balances; centrifuge; breeding cages; anatomical preparations and models; a number of the Leukart-Chun zoological wall charts; one Leitz large compound microscope with mechanical stage and a full set of apochromatic objectives; and one Bausch and Lomb projecting lantern with accessories. The departmental library contains a number of the current periodicals as well as the more important text-books and reference works.

Shops.—The *Wood-Shop* is provided with lockers equipped with full set of tools for bench-work, such as chisels, squares, saws, gauges, etc. The wood-work machinery consists of nine wood-turning lathes, a planer, rip-saw, and band-saw.

The *Machine-Shop* is equipped with an 18-inch Cady lathe, an 11-inch Seneca Falls lathe, a drill press, a Gray Planer, a No. 1 Brown & Sharpe Universal Milling Machine, a Springfield shaper, a small Barnes lathe, three emery wheels, grindstone, vises, machine-shop tools.

The *Forge-Shop* is equipped with six power-blast forges, one hand forge, six anvils, and a large supply of tools.

Engineering Laboratory and Field Instruments.—The *Laboratory* now contains a cement testing machine, built in our own shops, a 50,000-pound testing machine equipped for all ordinary tests, weighing machines, computing instruments, etc.

The field instruments consist of two surveyors' compasses, four wye levels, six transits, complete plane table, several small plane tables, and a high grade sextant with artificial horizon. The necessary rods, chains, tapes, etc., also barometers, clinometers, pedometers, prismatic compasses, and range finders are all available.

The College Farm.—The *Farm* connected with the College of Agriculture consists of 117 acres—about 28 acres for trucking and general field crops, 2 acres for stock lots, 2 acres for orchard, 5 acres for pasture and 3 acres for buildings and grounds where a hay and machinery barn stands.

The laboratory equipment in live stock is only well begun, but the individuals of the herds are of high grade.

Athletic Equipment.—The institution has provided a hard surfaced athletic field, including football gridiron, baseball dia-

mond, with grandstand and enclosed field, and ample tennis court facilities. A basket-ball court and swimming-pool are also located on the campus.

The equipment of the gymnasium represents an expenditure of some $3,000.00 and this collection of apparatus is probably unsurpassed in the South. All of the above is in charge of a competent athletic director.

GOVERNMENT AND REGULATIONS

ADMINISTRATION

Board of Control.—The general government of the University of Florida is vested by law in the Board of Control, consisting of five members appointed by the Governor of Florida from various parts of the State. Appointments to the Board of Control are made for a term of four years.

The Board of Control appoints the President, and upon the President's nomination, elects members of the Faculties, directs the general policies of the University, supervises the expenditure of its funds, prescribes the requirements for admission, with the advice of the President and Faculties, and confers degrees upon recommendation of the President and Faculties.

President.—The direct administration of all affairs of the University is in the hands of the President, appointed by the Board of Control and acting under its authority.

Deans and Directors.—For convenience of administration, the University is organized under the following divisions: The College of Arts and Sciences, the College of Agriculture, the College of Engineering, the College of Law, the Teachers' College, the Division of University Extension, and the Agricultural Experiment Station. Each college has as its executive head a dean, chosen from the Faculty of that college; the Division of University Extension and the Agricultural Experiment Station have as executive head a director. These officers are responsible to the President of the University.

Council of Administration.—The President and Vice-President of the University, the Deans of the several colleges, and

the Director of the Experiment Station form a Council of Administration, with the following functions: To lay out new lines of work, inaugurate new enterprises in general, and prepare the annual budget; and to act as the judicial body of the general faculty on cases of general discipline not under the authority of the colleges, on new courses of study and changes in existing courses, bringing these matters before the Board of Control, and on questions of college action referred to it by any member of the general faculty.

FACULTY.—The General Faculty of the University includes all persons engaged in the work of instruction in the University, excepting laboratory assistants and under-graduate assistants to the professors. Under the leadership of the President it forms the general governing body in all matters of instruction and discipline.

The Faculty of each college consists of those members of the General Faculty who give instruction in that college. It forms the governing body in matters of instruction and discipline in its college.

EXPERIMENT STATION STAFF.—The Experiment Station Staff consists of all persons engaged in scientific work in the Agricultural Experiment Station. Under the leadership of the Director, it has authority in all matters of agricultural investigation and their publication.

DISCIPLINE

OFFICERS.—The immediate supervision of the general life of the student-body is in the hands of an *Officer in Charge*, who occupies quarters in the dormitory.

In each section of the dormitory a *monitor* maintains a general oversight and makes reports to the Officer in Charge. Monitors are appointed from among those students who are more than twenty-one years old.

OFFENSES AGAINST GOOD CONDUCT.—Any offense against good conduct, in the ordinary meaning of the word, renders a student liable to discipline, whether or not a formal rule against the offense has been published.

The following offenses will be treated with especial severity:

Disrespect to an officer of the University; wanton destruction of property; gambling; debauchery or drunkenness, or having intoxicating liquors in possession on the University grounds.

HAZING.—No form of hazing will be tolerated in the University and all former students and candidates for admission are hereby notified that they will be required on matriculating to sign the following pledge:

"I hereby promise upon my word of honor, without any mental reservation whatsoever, to refrain from all forms of hazing while I am connected with the University of Florida."

No student will be admitted to his room in the dormitories until he has matriculated and signed the above pledge.

THE HONOR SYSTEM.—Every student of the University is assumed to be a man of honor, and his word is accepted on all matters. In such rare cases as a student may prove not to be a man of honor, he is expelled, either by action of the Faculty, or by action of the Board of Governors of the student-body, consisting of the presidents of the different classes.

ABSENCE FROM THE UNIVERSITY.—No undergraduate student is permitted to be absent from the University over night without written permission from the Officer in Charge.

ABSENCE FROM CLASSES.—A student who accumulates ten unexcused absences from classes or drill for which he is scheduled, will be given a severe reprimand, and parent or guardian will be notified. Two additional unexcused absences will dismiss the student from the University. Ten unexcused absences from the chapel service will subject the student to the same penalty. This applies to ALL students in the University.

ATTENDANCE UPON DUTIES—A student who, without good cause, persistently absents himself from his University duties, is, after due warning, dishonorably dismissed for the remainder of the academic year. A student who, by reason of ill health or outside demands upon his time, finds it impossible to give regular attention to University duties, is requested to withdraw; but such request does not in any way reflect upon his good standing.

All delinquencies in University duties are reported to the Officer in Charge, who promptly brings them to the attention of the students, and requires a prompt explanation to be made. Careful records of all delinquencies are kept.

REGULATIONS CONCERNING STUDIES

QUANTITY OF WORK.—Every undergraduate student must take studies requiring at least fifteen hours of recitations per week, or equivalent time in laboratory courses. No student may take more than twenty-three hours per week, except by special permission of the Faculty of his college.

In counting hours, two hours of laboratory work are considered equivalent to one hour of recitation.

AVOIDANCE OF CONFLICTS.—Studies must be so chosen as not to conflict, as shown on the printed schedule for the year.

ASSIGNMENT TO CLASSES.—Every student must appear before the Dean of his college at the beginning of each academic year for assignment to classes. An individual instructor has no authority to enroll a student in any course, except as authorized by the Dean of his college.

CHOICE OF STUDIES.—The choice as to which one of the various curricula is to be pursued rests entirely with the individual student, subject to considerations of proper preparation; but the group of studies to be taken must be that belonging to one of the regular years in the chosen curriculum exactly as announced in the catalogue, unless special reasons exist for deviating from this arrangement.

CONDITIONS.—A student who is prepared to take up most of the studies of a certain year in the regular curriculum, but is deficient in some studies, will be permitted to proceed with the work of that year. Such a student is said to be *conditioned;* he is permitted to proceed subject to the *condition* that he make up the studies in which the deficiency occurs. This should be done, when possible, by study with a private tutor, and examination as soon as the work is completed; but it may be done by pursuing the studies in question with a lower class in the University, and the Committee on Classification has authority to require it to be done in that way when such procedure seems best. In every case, provision for all of the lower studies must be made before any of the higher studies may be taken; and in the event of conflicts on the schedule, or excessive quantity of work, higher studies must give way to lower.

EXTRA STUDIES.—By special permission from the Dean of his

college, a student may take extra studies in addition to those prescribed in his regular curriculum, provided that can be done without conflicting with a regular study or exceeding the maximum number of hours of study. Such permission is not, as a rule, granted to any conditioned student; and it may be withdrawn from any student in the event of failure in any of the regular studies.

Special Students.—Students who may desire to take special courses will be allowed, upon recommendation of the Committee on Classification, to take those classes for which they may be prepared. Such students are subject to all the laws and regulations of the University. These special courses do not lead to any regular degree.

The purpose of permitting students to take special courses, other than those regularly offered, is merely to provide for the occasional exceptional requirements of individual students; and any abuse of this privilege, for the sake of avoiding regular studies which may be distasteful, can not be tolerated. Accordingly, no minor student is permitted to enter as a special student except upon written request of his parent or guardian.

Classification of Irregular Students.—A student is deemed to belong to that class in which the majority of his hours of work lies. But a special student is not considered as belonging to any of the regular classes.

Changes in Studies.—After a student is once registered, he is not permitted to discontinue any class, or to begin any additional one, without written permission from the Dean of his college, which must be shown the instructor involved.

Grades and Reports.—Each instructor keeps a record of the quality of work done by each student in his classes, and assigns grades, on the scale of 100. At the end of each month the average grades for the month are reported to the office of the University for permanent record and for entry upon a monthly report to the parent or guardian of each student.

If the monthly grades show that any student is not doing satisfactory work he may be required to drop some of his studies and substitute studies in a lower class, or he may be required to withdraw from the University.

EXAMINATIONS.—At the end of each semester regular examinations are held on all of the work of that semester.

FAILURES IN STUDIES.—A final grade for each semester's work is assigned, based upon the examination and the monthly grades. If this grade falls below 60 for any student, he is considered to have failed, and may proceed only subject to a condition in the study in which failure has occurred.

RE-EXAMINATIONS.—A student who has failed in the work of a semester is allowed, in case his grade does not fall below 50, to make up the condition by re-examination, on the first Saturday of March or the first Saturday of October. To pass by re-examination, a grade of 70 must be attained. Only one re-examination in any subject is allowed to a student; in case of failure to pass, he must repeat the whole semester's work in the subject concerned.

ATHLETICS

GENERAL POLICY.—It is the policy of the University to foster clean, amateur athletics; not to tolerate professionalism in its athletics.

ABSENCES ON ACCOUNT OF ATHLETICS.—The members of regular athletic teams, together with necessary substitutes and manager, are permitted to be absent from University duties for such time as may be clearly necessary to take part in games away from Gainesville. All class-work missed on account of an athletic trip must be made up as promptly as possible after returning at such hours as may be arranged by the various professors.

SCHEDULE OF GAMES.—The schedule of games must be arranged so as to interfere as little as possible with University duties, and must receive the approval of the Committee on Athletics.

ELIGIBILITY TO ATHLETIC TEAMS.—Any team playing under the name of the University of Florida must be composed exclusively of genuine students in good standing in the University. A list of the players and substitutes for each game must be submitted to the Committee on Athletics before that game, and must receive its approval. Negligence of duties, or failures in studies, excludes a student from the right to play on a team representing the University.

No student is permitted to play on any of the regular teams, who is not in proper physical condition, in the opinion of the University physician. No minor student is permitted to play if his parent or guardian objects to his doing so.

MEDALS

Medals are offered in the University (1) for the best declaimer in the Freshman and Sophomore classes; (2) for the best original oration in the Junior class of any college; (3) for the best original oration in the Senior class of any college. These contests are all settled in public competition at Commencement. The speakers are limited to four from each class, selected by the Faculty.

Through the liberality of Mr. H. H. Buckman, of Jacksonville, Florida, a handsome medal is offered annually to the student of the College of Engineering making the highest average grade for the year.

STATEMENT OF EXPENSES

UNIVERSITY CHARGES.—*Tuition.*—No tuition is charged to a student whose home is in Florida, except in the College of Law, where a tuition charge of forty dollars ($40.00) will be made. Students who are non-residents of Florida will be required to pay a tuition fee of twenty dollars ($20.00) per year.

Registration Fee.—A registration fee of five dollars ($5.00) per year will be charged all students, except one scholarship student from each county in Florida.

Damage Deposit.—In order to secure the University property against damage, the sum of five dollars ($5.00) must be deposited at registration. Damage known to have been done by any student will be charged to his individual account; all other damages will be prorated among the students.

At the end of the scholastic year this deposit, less the amount deducted, will be returned to the student.

Infirmary Fee.—An infirmary fee of three dollars ($3.00) will be charged each student residing on the campus, the proceeds of which will go towards defraying the salary of a resident nurse. This will secure the student, in case of illness, the privilege of a

bed in the infirmary which occupies Section A of Thomas Hall; the services of the nurse, and attention from the University physician, E. R. Flint, M.D. (Harvard). The payment of this fee does not increase the University charges made in former years, as a like amount is deducted from the cost of board and lodging for the first semester.

Board and Lodging.—Board and lodging will be furnished by the University at a cost of sixty dollars ($60.00) for the first semester, not including the Christmas vacation, and sixty-four and a half dollars ($64.50) for the second semester. These sums must be paid at the beginning of each semester. *Board and lodging will be furnished only by the semester and not by the month.* In case a student is dismissed from the University, no part of this sum will be refunded. In very exceptional cases, arrangements may be made to pay in three instalments, *payable in advance.* This includes meals in the dining-hall and room (with heat, light and access to a bathroom), furnished as stated below. The dining-hall will be closed during the Christmas holidays.

Room Without Board.—Students occupying a room in the dormitories, but not taking meals in the dining-hall will be charged $20.00 per semester for lodging.

Furniture.—All rooms are partially furnished. The furniture consists of two iron bedsteads and mattresses, chiffonier or bureau, table, washstand and chairs. The students are required to provide all other articles, including pillows, bedding, washbowl, pitcher, mirror, half curtains, mosquito-bar, etc.

Uniform.—All students, except graduate, law, and normal students, are required to provide themselves with a uniform. This is of the best quality Charlottesville cadet gray, and is much less expensive than citizen's clothing of like quality. The uniform may be worn at all times and is neat and serviceable. In order to minimize the heat of summer, students may be required at that time to furnish themselves with a regulation shirt, trousers and hat, leggins, shoes and tie, and two pairs of white duck trousers, obtainable at a slight expense. The expense of uniform in all is in the neighborhood of $23.00, which amount must be deposited on entrance.

Books.—The cost of books depends largely upon the course

taken. The cost of required text-books is, in no case, a large item of expense, though in the higher classes the student is encouraged to acquire a few works of permanent value.

The following statement summarizes the minimum expense of a Florida student registered in the College of Arts and Sciences, of Agriculture, or of Engineering:

Tuition	$000 00
Registration Fee	5 00
Damage Deposit	5 00
Infirmary Fee	3 00
Board and Lodging	124 50
Uniform (about)	23 20
Books (about)	10 00
Incidentals (laundry, athletic, literary society, etc., dues), about	20 00
	$190 70
Less Damage Deposit returned at end of year	5 00
	$185 70

The actual University charges to a law student (including board and lodging, fees, and tuition, but not including books) are $165.00.

Graduate and normal students, who are exempt from buying uniforms, will deduct the cost of uniform from the above table; and students from other States will add a tuition fee of $20.00.

REMITTANCES.—*All remittances should be made to the Auditor, The University of Florida, Gainesville, Fla.*

SCHOLARSHIPS.—Through the generosity of friends of the University the institution is able to offer needy and deserving young men the following scholarships:

Three of $100.00 each per year:

1. *The Board of Control Scholarship.*—Established and maintained by the Board of Control. For Florida students.

2. *The Kirby Smith Scholarship.*—Established and maintained by the Kirby Smith Chapter of the Daughters of the Confederacy. For grandsons of Confederate veterans.

3. *The Faculty Scholarship.*—Established and maintained by the Faculty of the University.

One of $120 per year:

4. *The Children of the Confederacy Scholarship.*—For the lineal descendant of a Confederate soldier.

Two of $200 per year:

5. *The High School Scholarship.*—For a graduate of any senior high school, preferably that of Escambia County.

6. *The G. S. & F. Railroad Scholarship.*—For a resident of any county through which this road passes. Recipient must enter the College of Agriculture.

Application for these scholarships should be made to the President of the University, and should be accompanied by a record of the student's work and statement of his need, and certificates of his character and dessert. The scholarships will be awarded on the following principles:

(*a*) The student must actually need this financial help to enable him to attend the University.

(*b*) He must be worthy to receive such help. To be worthy he must first be a young man of good character and habits; second, he must be sufficiently far advanced to enter not lower than the Freshman Class of the University. This means that he must have completed the work of the eleventh grade of the public schools, or its equivalent.

Opportunities for Earning Expenses.—It is often possible for a student to earn a part of his expenses by working during such hours as are not required for his University duties.

The University gives regular employment to a few students as waiters in the dining-hall, as janitors, and in some other capacities. Such employment is not, as a rule, given to a student unless he is financially unable to complete a year at the University without earning money. In making appointments preference is given to students in attendance at the University, as compared with applicants from outside; to members of higher classes, as compared with those of lower classes; and to students of high standing as compared with those of low standing. Employment is not given to a student who fails in any study.

While the employment of students is designed primarily to assist those in need of funds, the payment for their services is in no sense a charity. The rate of remuneration is no higher, and the standard of service demanded is no lower, than would be the

case if the work were done by others than students. If a student employee fails to give satisfaction in his work, he is promptly discharged. Otherwise he is continued in his position as long as he cares to hold it, provided it is not found to interfere with reasonable success in his studies, and provided he does not commit any breach of general good conduct.

While great credit is due to those young men who are willing to make the sacrifices required to earn the expenses of their education, students are not advised to undertake to earn money while pursuing their studies, unless such a course of action is quite unavoidable. Proper attention to studies makes sufficient demand upon the time and energy of a student, without the burden of outside duties; and such time as the studies leave free can be spent more profitably in healthful recreation.

STUDENT ORGANIZATIONS

The Young Men's Christian Association.—There is a branch of the Y. M. C. A. in the University, which meets every Sunday. At these meetings the practical rather than the theoretical phases of Christianity are freely and candidly talked over, and the students discuss among themselves the special problems which arise in student life. Members of the Faculty, the ministers of the city, and distinguished Christian workers are frequently invited to address the association. Bible classes are organized in connection with the work.

Students, on entering the University, should by all means become identified with this organization, and parents should counsel and encourage them in so doing. A note of introduction to the President of the organization will cause especial attention to be given a new student.

Literary Societies.—The *Literary Societies* are valuable adjuncts to the educational work of the University. They are conducted entirely by the students and maintain a high level of endeavor. The members obtain much practical experience in the conduct of public assemblies. They assimilate knowledge of parliamentary law, acquire ease and grace of delivery, learn to argue with calmness of thought and courtesy of manner, and are trained in thinking and in presenting their thought clearly and effectively when facing an audience.

All students are earnestly advised to connect themselves with one of these societies, and to take a constant and active part in its work.

THE TRANSIT CLUB.—This is an organization of the civil engineering students, having for its object the promotion of both social and intellectual interests of such men. It was founded in the spring of 1909 as a natural result of the fraternal feeling brought about by the close comradeship of camp life, and is the pioneer engineering society in this State. Fortnightly meetings are held in the civil engineering class rooms, and each member in turn presents a paper on some topic of interest to civil engineers.

THE TEACHERS' CLUB.—This is an organization of students in the Teachers' College and of others who are interested in teaching. It meets once each week, when all phases of modern educational problems are discussed in the form of reports, essays and debates. It attempts to acquaint, in a practical manner, the young teacher with the problems that will confront him in his regular school work, and especially to show him the advantages of teachers' meetings and conferences.

Students who contemplate teaching are urged to become members and take an active part in the work of this club.

THE AGRICULTURAL CLUB.—The purpose of the Agricultural Club is to promote interest in agriculture; to unify college thought; to afford training in public speaking; and to prepare for leadership in after life. The club meets twice during the month. Its membership is composed of students in the College of Agriculture and others interested in the subject.

THE KELVIN ENGINEERING CLUB.—This is a society of electrical and mechanical engineering students. It meets every two weeks for the discussion of topics of general interest in electrical and mechanical engineering.

TERMS OF ADMISSION

A candidate for admission must present, along with his scholastic record, a certificate of good moral character; and if the candidate be from another college or university, the certificate must show that he was honorably discharged.

METHODS OF ADMISSION

There are two methods of gaining admission to the University:

(1) *By Certificate.*—The University will accept certificates from the approved high schools of Florida; from accredited academies and preparatory schools of the State; and from any secondary school of another State which is accredited by its State University.

The certificate presented by the candidate for admission must be officially signed by the principal of the school attended. It must state in detail the work of preparation and, in the case of Florida high schools, that the course *through the eleventh grade* has been satisfactorily completed.

Blank certificates, conveniently arranged for the desired data, will be sent to all principals and, upon application, to prospective students.

(2) *By Examination.*—Candidates not admitted by certificate will be required to stand written examinations upon the entrance subjects. These examinations will be held on the Thursday and Friday following the last Wednesday in May and on the Monday and Tuesday preceding the last Wednesday in September.

SCHOLASTIC REQUIREMENTS

"*Entrance Units.*"—The scholastic requirements for admission are measured in "Entrance Units." These units are based upon the curriculum of the high schools of Florida. A unit represents a course of study pursued throughout the school year with five recitation periods of at least forty-five minutes each per week, four courses being taken during each of the four years. Thus the high school curriculum is equivalent to sixteen units. Two laboratory periods should be counted as one recitation period.

REQUIREMENTS FOR 1912-1913

Number of Units Required.—At present twelve units are required for entrance, equivalent to the *completion of the eleventh* grade of the senior high schools.

Distribution of Units.—Of the twelve units required for admission, eight are specified as follows:

English.....3 units
Mathematics.....3 units
History.....2 units

Candidates for the degree of Bachelor of Arts must present in addition:

Latin.....3 units

The remaining units (for A.B., one; for B.S., four) may be elected from the list of elective subjects given below:

REQUIREMENTS FOR 1913-1914

Number of Units Required.—Notice is hereby given that, with the year 1913–14, the requirements for entrance to the Freshman Class of the University will be advanced one year. Candidates will be accepted who have graduated (satisfactorily completed the twelfth grade) from a standard high school with a full four-year curriculum, based upon an eight-year grammar school course; or upon the presentation of *sixteen* units of preparatory work as described below:

Distribution of Units.—Of the *sixteen* units required for admission, eight are specified as follows:

English.....3 units
Mathematics.....3 units
History.....2 units

Candidates for the degree of Bachelor of Arts must present in addition:

Latin.....4 units

Candidates for the degree of Bachelor of Science in Engineering must present in addition:

Mathematics.....1 unit

The remaining units (for A.B., four; for B.S., eight; for B.S. in Agriculture, eight; for B.S. in Engineering, seven) may be elected from the list of elective subjects given below:

LIST OF ELECTIVE SUBJECTS

Agriculture	1 unit
Botany	½ or 1 unit
Chemistry	1 unit
English	1 unit
Latin	4 units
History	2 units
Modern Languages—French, German, or Spanish	2 units
Physical Geography	1 unit
Physics	1 unit
Zoology	½ or 1 unit

Candidates for the degree of Bachelor of Science in the College of Arts and Sciences are strongly urged to elect the three units of Latin.

Deficiencies.—A deficiency of two units will be allowed a candidate, but such deficiency must be removed by the end of the first year of admission.

DESCRIPTION OF UNIT COURSES

ENGLISH.—Four units, three required, one elective.

The required work in English (including Grammar, Composition and Rhetoric and the recommended Classics) is designed to cover three years. It is urged that the exercises in Composition and the use of the Classics be continued through the three years.

(1) *Grammar.*—A thorough knowledge of English Grammar both in its technical aspects and in its bearings upon speech and writing.

(2) *Composition and Rhetoric.*—A mastery of the fundamental principles of elementary Rhetoric, such as is given in any standard high school text; and constant practice in Composition, oral and written, during the whole period of preparation.

(3) *Classics.*—The English Classics now generally adopted by school and colleges. There are two divisions of this work:

I. Reading.—A certain number of books will be set for reading (see list subjoined). The candidate will be required to present evidence of a general knowledge of the subject-matter and to answer simple questions on the lives of the authors. The form of examination will usually be the writing

of a paragraph or two on each of several topics to be chosen by the candidate from a considerable number—perhaps ten or fifteen—set before him in the examination paper. The treatment of these topics is designed to test the candidate's power of clear and accurate expression, and will call for only a general knowledge of the substance of the books.

II. Study and Practice.—This part of the examination presupposes the thorough study of each of the works named in this division. The examination will be upon the subject-matter, form, and structure. In addition the candidate may be required to answer questions involving the essentials of English Grammar and on the leading facts in English literary history to which the prescribed texts belong.

(a) *For Reading.*—For 1911 and 1912, ten books, selected from the following list:

Group I (two to be selected).—Shakespeare's "As You Like It," "Henry V," "Julius Cæsar," "The Merchant of Venice," "Twelfth Night."

Group II (one to be selected).—Bacon's Essays; Bunyan's "The Pilgrim's Progress," Part I; The Sir Roger de Coverley Papers in the Spectator; Franklin's Autobiography.

Group III (one to be selected).—Chaucer's Prologue; Selections from Spencer's "Faerie Queene;" Pope's "The Rape of the Lock;" Goldsmith's "The Deserted Village;" Palgrave's "Golden Treasury" (First Series), Books II and III, with especial attention to Dryden, Collins, Gray, Cowper, and Burns.

Group IV (two to be selected).—Goldsmith's "The Vicar of Wakefield;" Scott's "Ivanhoe," "Quentin Durward;" Hawthorne's "The House of the Seven Gables;" Thackeray's "Henry Esmond;" Mrs. Gaskell's "Cranford;" Dickens' "A Tale of Two Cities;" George Eliot's "Silas Marner;" Blackmore's "Lorna Doone."

Group V (two to be selected).—Irving's Sketch Book; Lamb's "Essays of Elia;" De Quincey's "Joan of Arc," and "The English Mail Coach;" Carlyle's "Heroes and Hero Worship;" Emerson's Essays (Selected); Ruskin's "Sesame and Lilies."

Group VI (two to be selected).—Coleridge's "The Ancient Mariner;" Scott's "Lady of the Lake;" Byron's "Mazeppa" and "The Prisoner of Chillon;" Palgrave's "Golden Treasury" (First Series), Book IV, with special attention to Wordsworth, Keats and Shelley; Macaulay's "Lays of Ancient Rome;" Poe's Poems; Lowell's "The Vision of Sir Launfal;" Arnold's "Sohrab and Rustum;" Longfellow's "The Courtship of Miles Standish;" Tennyson's "Gareth and Lynette," "Lancelot and Elaine," and "The Passing of Arthur;" Browning's "Cavalier Tunes," "The Lost Leader," "How They Brought the Good News from Ghent to Aix," "Evelyn Hope," "Home Thoughts from Abroad," "Home Thoughts from the Sea," "Incident of the French Camp," "The Boy and the Angel," "One Word More," "Hervè Riel," "Pheidippides."

(b) *For Study.*—For 1911 and 1912: Shakespeare's "Macbeth;" Milton's "Lycidas," "Comus," "L'Allegro," and "Il Penseroso;" Burke's "Speech on Conciliation with America," or Washington's Farewell Address and Webster's "First Bunker Hill Oration;" Macaulay's Life of Johnson, or Carlyle's Essay on Burns.

(4) *History of American Lierature; History of English Literature.*—The fourth year of the high school course in English usually covers the above subjects. This course will be accepted as an additional elective unit in English.

No candidate will be accepted in English whose work is notably defective in point of spelling, punctuation, idiom or division into paragraphs.

MATHEMATICS.—Four units, three required in the College of Arts and Science and of Agriculture; four in the College of Engineering.

(1) *Algebra—First Year.*—One unit. A thorough knowledge of the elementary operations, factoring, highest common factor, least common multiple, fractions, simple equations, inequalities, involution, evolution, and numerical quadratics. This is supposed to represent the work of one year in the high school.

(2) *Algebra—Second Year.*—One unit.* This includes: A

*This course represents only one-half unit on the Carnegie unit scale.

thorough study of quadratic equations, ratio and proportion, the progressions, imaginary quantities, the binomial theorem, logarithms, and graphic algebra. This is supposed to represent the work of the second year in algebra in the high school.

(3) *Geometry.*—One unit. The five books of Plane Geometry are required.

(4) *Solid Geometry.*—One-half unit.

(5) *Plane Trigonometry.*—One-half unit.

HISTORY.—Four units, two required, two elective.

Two years of high school work in history, counting two units, are required for entrance. A third and fourth years' work in history, covering divisions of the subject not offered for the two years' credits, will count as 2 additional units in making up the units required for admission to the Freshman Class. The candidate may offer any two of the following divisions of history:

(1) Ancient History, with particular reference to Greece and Rome.....1 unit
(2) European History since Charlemagne.....1 unit
(3) English History.....1 unit
(4) American History.....1 unit

A year's work based on a good text-book of at least 300 or 400 pages is required in the case of each of the above divisions. The student shoud always know something of the author of the text-book which he uses and should also be able to give evidence of having consulted some works in addition to that used as a text.

LATIN.—Four units; A.B. requirement; B.S. elective.

At least four years' work in this study is required to cover the four units. The minimum for each year is as follows:

(1) *First Year.*—One unit. A first year Latin book, such as Collar & Daniell's First Year Latin or Potter's Elementary Latin Course.

(2) *Second Year.*—One unit. Four books of Cæsar's Gallic War, with constant study of the grammar and constant practice in prose composition.

(3) *Third Year.*—One unit. Six of Cicero's Orations, with grammar and prose composition throughout the year.

(4) *Fourth Year.*—One unit. The first six books of the Aeneid

and as much prosody as relates to accent, versification in general and dactylic Hexameter.

MODERN LANGUAGES.—Two units, elective. The two units in a modern language should be offered; if only one is offered, the student will be required to pursue the subject a second year in the University.

French.—The work should comprise: (1) careful drill in pronunciation; (2) the rudiments of grammar, including the inflection of the regular and the more common verbs, the plural nouns, the inflection of adjectives, participles, and pronouns; the use of personal pronouns, common adverbs, prepositions and conjunctions; the order of words in the sentence, and the elementary rules of syntax; (3) abundant easy exercises designed not only to fix in the memory the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (4) the reading of from 100 to 175 duodecimo pages of graduated texts, with constant practice of translating into French easy variations of the sentences read (the teacher giving the English), and in reproducing from memory sentences previously read; (5) writing French from dictation.

During the second year the work should comprise: (1) the reading of from 250 to 400 pages of easy modern prose in the form of stories, plays, or historical or biographical sketches; (2) constant practice, as in the previous year, in translating into French easy variations upon the texts read; (3) frequent abstracts, sometimes oral and sometimes written, of portions of the text already read; (4) writing French from dictation; (5) continued drill upon the rudiments of grammar, with constant application in the construction of sentences; (6) mastery of the forms and use of pronouns, pronominal adjectives, of all but the rare irregular verb forms, and of the simpler uses of the conditional and subjunctive.

German.—The work should comprise: (1) careful drill upon pronunciation; (2) the memorizing and frequent repetition of easy colloquial sentences; (3) drill upon the rudiments of grammar, that is, upon the inflection of the articles, of such nouns as belong to the language of every-day life, of adjectives, pronouns, weak verbs, and the more usual strong verbs; also upon the use of the more common prepositions, the simpler uses of the modal

auxiliaries, and the elementary rules of syntax and word-order; (4) abundant easy exercises designed not only to fix in mind the forms and principles of grammar, but also to cultivate readiness in the reproduction of natural forms of expression; (5) the reading of from 75 to 100 pages of graduated texts from a reader, with constant practice in translating into German easy variations upon sentences selected from the reading-lesson (the teacher giving the English), and in the reproduction from memory of sentences previously read.

During the second year the work should comprise: (1) the reading of from 150 to 200 pages of literature in the form of easy stories and plays; (2) accompanying practice, as before, in the translation into German of easy variations upon the matter read and also in the off-hand reproduction, sometimes orally and sometimes in writing, of the substance of short and easy selected passages; (3) continued drill upon the rudiments of the grammar, directed to the ends of enabling the pupil, first, to use his or her knowledge with facility in the formation of sentences, and, secondly, to state his or her knowledge correctly in the technical language of grammar.

Spanish.—The work should comprise: (1) careful drill in pronunciation; (2) the rudiments of grammar, including the conjugation of the regular and the more common irregular verbs, the inflection of nouns, adjectives and pronouns, and the elementary rules of syntax; (3) exercises containing illustrations of the principles of grammar; (4) the reading and accurate rendering into good English of from 100 to 175 duodecimo pages of graduated texts, with translation into Spanish of easy variations of the sentences read; (5) writing Spanish from dictation

During the second year, the work should comprise: (1) the reading of from 250 to 400 pages of easy modern prose in the form of stories, plays, or historical or biographical sketches; (2) constant practice in translating into Spanish easy variations upon the text read; (3) frequent abstracts of the texts read; (4) writing Spanish from dictation; (5) continued drill upon the rudiments of grammar.

AGRICULTURE.—One unit; required in the College of Agriculture.

The preparation should include the study of Agriculture for

Southern Schools, by Duggar, and The Nursery-Book, by Bailey, or their equivalents. At least one-third of the time should be devoted to laboratory practice, field work, and carefully planned visits to successfully and unsuccessfully conducted farms and fruit plantations.

PHYSICAL GEOGRAPHY.—One unit, elective.

The preparation should include the study of at least one of the modern text-books, together with an approved laboratory and field course, and should cover the following subjects:

1. The earth as a globe; shape of the earth, how proved, size, how measured; motions, how determined; map making; different modes of projection.

2. The ocean; forms and divisions; depth, density, temperature; ocean movements, waves and currents; character of ocean floor; life in ocean; tides, character and causes; shore lines.

3. The atmosphere; chemical composition, and how determined; pressure of, and how determined; circulation of, character and cause; storms, classification of, and cause.

4. Land, amount and distribution of; topographic charts; plains, kinds of, and development of; plateaus, kinds of, and development of; volcanoes, distribution and character of; rivers, life-history of; glaciers, kinds and characteristics of.

BOTANY.—One-half or one unit, elective.

The preparation should include a careful study of the following divisions of the subject: Anatomy and morphology; physiology; ecology; the natural history of the plant groups, and classification. Individual laboratory work by the student is essential and should receive at least double the amount of time devoted to recitation.

ZOOLOGY.—One-half or one unit, elective.

The candidates should be familiar with the subject of Zoology as given in a standard high school text, and, in addition to the theoretical work, at least ten specimens must be dissected, and note-books with drawings presented on entrance to the University, showing the character of the work completed.

PHYSICS.—One unit, elective.

Preparation should include recitations on a standard high school text; and experimental work, consisting of lecture-table

demonstrations and individual laboratory work The latter should comprise at least thirty exercises selected from the list of a good laboratory manual.

CHEMISTRY.—One unit, elective.

The preparation should include individual laboratory work, comprising at least thirty exercises selected from the list given in a recognized laboratory manual; instruction by lecture-table demonstrations, to be used mainly as a basis for questioning upon the general principles involved in the pupil's laboratory investigations; the study of a standard text-book, to the end that the pupil may gain a comprehensive and connected view of the most important facts and laws of elementary chemistry.

ADVANCED STANDING

During the year 1912–13, graduates of senior high schools will be given credit on their Freshman year for such courses as they have satisfactorily completed in the twelfth grade of the high school, the right being reserved to reclassify them if, after trial, they appear unprepared in the subject or subjects in which advanced standing is granted.

Candidates who have been admitted to the University from other colleges or universities will be granted advanced standing only upon recommendation of the head of the department in which the standing is desired. The candidate's fitness for advanced work in the department may be determined by examination or trial. Students transferred from other colleges or universities of like standing will ordinarily be classified according to ground already covered.

SPECIAL STUDENTS

Students who may desire to take special courses will be allowed to do so by special arrangement. (See page 33.)

ORGANIZATION

In accordance with the recommendation of the Association of State Universities, the University of Florida has been reorganized with a view to bringing its organization and nomenclature into harmony with that of other institutions engaged in similar work and in order to attain a better co-ordination among its various lines of activity. This change does not involve any material alteration in the work of the institution as it has been hitherto conducted; but gives a consistent nomenclature and a systematic division to the various fields. While it is recognized that the organization is somewhat extensive for the present, it is believed that it is wise to keep distinct the various features of the work with a view to future development.

The University organization is as follows:

I. The Graduate School.

II. The College of Arts and Sciences:
- (a) A Curriculum leading to the A.B. degree.
- (b) A Curriculum leading to the B.S. degree.

III. The College of Agriculture:
A Curriculum leading to the degree of B.S. in Agriculture.

IV. The College of Engineering:
- (a) A Curriculum leading to the B.S. degree in Civil Engineering.
- (b) A Curriculum leading to the B.S. degree in Electrical Engineering.
- (c) A Curriculum leading to the B.S. degree in Mechanical Engineering.

V. The College of Law:
A Curriculum leading to the degree of LL.B.

VI. The College of Education:
A Curriculum leading to the A.B. degree in Education.

VII. The Division of University Extension:
- (a) Farmers' Institutes.
- (b) Correspondence Courses in Agriculture.
- (c) Lecture and Literary Bureaus.

VIII. The Agricultural Experiment Station.

GRADUATE SCHOOL

ORGANIZATION.—The work in this school is under the direction of the Committee on Graduate Studies. This committee consists of Professors Anderson, Cox, Benton, Davis, Keppel, and Vernon.

DEGREES OFFERED.—The University is not in a position at present to lay any great stress upon the graduate work. Its work is mainly of a college grade and will doubtless remain so for a good many years to come. However, for the benefit of those who wish to carry their studies farther, the University does offer the degree of Master of Arts (M.A.), the degree of Master of Science (M.S.), and the degree of Master of Science in Agriculture (M.S.A.). Many of the departments of the colleges are prepared to give courses leading to these degrees.

PREREQUISITE DEGREES.—Candidates for the Master's degree must possess the corresponding Bachelor's degree of this Institution or an institution of like standing.

APPLICATIONS.—Candidates for the Master's degree must present to the Chairman of the Committee on Graduate Studies a written application for the degree not later than the first of November in the year in which the degree is desired. This application must name the major and minor subjects which are offered for the degree and must contain the signed approval of the heads of the departments concerned.

TIME REQUIRED.—The student must spend at least one full academic year in residence at the University of Florida as a graduate student, devoting his full time to the pursuit of these studies.

WORK REQUIRED.—The work is twelve hours per week. Six hours of this work must be in one subject (the major) and of a higher grade than any course offered for undergraduate students in that subject. The other six hours (the minor or minors) are to be determined and distributed by the professor in charge of the department in which the major subject is selected. It is understood, however, that no course designed primarily for students of a lower grade than the Junior Class will be acceptable

as a minor. It is also to be understood that while the major course is six hours, these hours are not the same as in undergraduate work. It means that the professor has the privilege of using these six hours for recitations or examinations, but the student will find that considerably more time is required to prepare one of these recitations than is the case in an undergraduate course.

DISSERTATION.—It is customary to require a dissertation showing original research and independent thinking on some subject accepted by the professor under whom the major work is taken, but this requirement may be waived at the option of the professor, subject to the approval of the Committee on Graduate Studies.

COLLEGE OF ARTS AND SCIENCES

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President.

JAS. N. ANDERSON, M.A., PH.D.,
Dean of the College of Arts and Sciences.
Professor of Ancient Languages.

JAS. M. FARR, A.M., PH.D.,
Professor of English.

EDWARD R. FLINT, PH.D., M.D..
Professor of Chemistry.

J. R. BENTON, A.B., PH.D.,
Professor of Physics.

C. L. CROW, A.M., PH.D.,
Professor of Modern Languages.

H. S. DAVIS, PH.D.,
Professor of Geology, Zoology and Bacteriology.

H. G. KEPPEL, A.B., PH.D.,
Professor of Mathematics and Astronomy.

MAJOR E. S. WALKER, U. S. A., Retired,
Professor of Military Science.

W. L. FLOYD, M.S.,
Professor of Botany.

HARVEY W. COX, A.M., PH.D.,
Professor of Education and Philosophy.

L. L. BERNARD, A.M., PH.D.,
Professor of History and Economics.

W. S. PERRY, A.B.,
Instructor in Physics.

GENERAL STATEMENT

AIM AND SCOPE.—The tendency of universities at the present time seems to be to reach out their arms farther and farther into the domain of knowledge and to become more and more places where one may expect to be able to acquire any form of useful knowledge in which he may be interested. In the center of such an institution, however, there is still found the College of Arts and Sciences, the pulsating heart, as it were, sending its vivifying streams to the outermost tips of the institution.

The aim of this college is to prepare for life, it is true, but not so directly and immediately as the professional schools. It is a longer, but a better road, for those who are able to travel it, to distinction and ultimate success in almost any calling. Especially in the case of the learned professions, it is becoming clearer that a man should first get a liberal education, if possible, before entering upon his professional studies.

The purpose and aim of the College of Arts and Sciences is to impart culture and refinement, to train the mind and strengthen the intellect, to build up ideals and establish the character, to enlarge the vision, to ennoble the thoughts, to increase the appreciation of the beautiful and the true, to add charm to life and piquancy to companionship, to make the man a decent fellow, a useful citizen, an influential member of society in whatever community he may be thrown, in whatever field his life-course may be run.

But if one wishes to examine the practical side exclusively, he will find that there is also something practical in all these courses. For instance, they are all valuable for the one who wishes to learn to teach those subjects. Moreover, the use of electives in the Junior and Senior years gives one an opportunity to specialize in some branch according to his inclination and in furtherance of his plans.

ADMISSION.—Twelve entrance units are required for admission to the College of Arts and Sciences. For candidates for the Bachelor of Arts degree they are:

English	3 units
Mathematics	3 units
History	2 units
Latin	3 units
Elective	1 unit
	12 units

For candidates for the Bachelor of Science, the three units of Latin may be replaced by other electives, though the Latin is considered preferable.

For full description of terms of admission and unit courses, see page 42.

CURRICULA.—The College of Arts and Sciences offers two curricula: one leading to the degree of Bachelor of Arts; another to the degree of Bachelor of Science. Each of these courses of study possesses a considerable degree of flexibility because of the freedom in the choice of electives, especially in the last two of the four years.

CURRICULUM

Leading to the Degree of Bachelor of Arts.

Freshman Year.

NAMES OF COURSES.	NATURE OF WORK:	HOURS PER WEEK.	DESCRIPTION, SEE PAGE.
English I*A*	American Literature, English Literature	3	72
French I	Elementary Course		84
or			
German I	Elementary Course	5	85
or			
Greek I	Elementary Course		66
History I	Modern European History	2	76
Latin I	Livy, Ovid, Virgil, Grammar, Prose Composition	3	65
Mathematics I*a* and I*b*	Solid Geometry, Trigonometry	5	82
Military Science I	Regulations	1	84
		19	

Sophomore Year.

English II*A*	Advanced College Rhetoric	3	72
French II	Intermediate Course		85
or			
German II	Intermediate Course	3	85
or			
Greek II	Xenophon, Lucian, Plato, Grammar, Composition		66
History II	The United States since 1783	3	77
Latin II	Cicero, Pliny, Horace, Composition, Grammar	3	65
Mathematics II*a*	Plane Analytic Geometry, Higher Algebra	3	82
Military Science II	Field Regulations, Manual of Guard Duty	1	84
Physics I	General Physics	3	88
		19	

Junior Year.

	Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
	Chemistry I	General Inorganic Chemistry	3	69
*†I	Latin III and Greek III or	Juvenal, Tacitus, Catullus, Tibullus, Ovid. Attic Orators, Homer, Composition, Grammar		65 66
*II	French III or German III and Modern Language I	Advanced Course. Advanced Course. Elementary Course		85 85 84
*III	English III and English V or English VII or	Milton, Shakespeare. Anglo-Saxon Grammar and Reading. American Literature, Southern Literature	6	73 74 74
*IV	Philosophy I and Philosophy II or	General Psychology. Logic and Ethics		86 86
IV	History III and Economics I or	French Revolution and Nineteenth Century Europe. Principles of Economics		77 78
*VI	Bible I and Bible II or Bible III (Greek VI)	Biblical History. The English Bible as Literature. Selections from the Septuagint and from the New Testament		67 67 67
	Electives	To be chosen from Elective Groups below	9	64
			18	

*At the beginning of the junior year the student will choose one of the six groups (I, II, III, IV, V, or VI), in which he will have six hours of work during his junior year and three hours during his senior year.

†A Modern Language may be substituted for either Latin III or Greek III in Group I.

Senior Year.

	Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
*I	Latin IV	Plautus and Terence, Seneca, Tacitus, etc		66
	Greek IV	Herodotus, Thucydides, Drama, Lyric		66
*II	French IV	Old French		85
	German V	Old High German, Middle High German		86
	Modern Language II	Intermediate Course		84
*III	English IV	The Novel, Romanticism		73
	English VI	Chaucer and Middle English Grammar		74
*IV	Philosophy III	Introduction to Problems of Philosophy	3	87
	Philosophy IV	History of Philosophy		87
*V	Political Science I	Government of the United States.		79
	Economics II	To be selected		78
*VI	Bible II	The English Bible as Literature		67
	Bible III (Greek VI)	Selections from the Septuagint and from the New Testament		67
	Bible IV	The Bible as an Ethical and Religious Guide		67
Electives		To be chosen from Elective Groups	12	64
			15	

*At the beginning of the junior year the student will choose one of the six groups (I, II, III, IV, V or VI), in which he will have six hours work during his junior year and three hours during his senior year.

CURRICULUM

Leading to the Degree of Bachelor of Science.

Freshman Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
English I*A*	American Literature, English Literature	3	72
Botany I	Genral Botany	3	68
French I	Elementary Course	5	84
or			
German I	Elementary Course		85
History I	Modern European History	2	76
Mathematics I*a* and I*b*	Solid Geometry, Trigonometry	5	82
Military Science I	Regulations	1	84
		19	

Sophomore Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
Chemistry I	General Inorganic Chemistry	3	69
English II*A*	Advanced College Rhetoric	3	72
French II	Intermediate Course	3	85
or			
German II	Intermediate Course		85
Mathematics II*a*	Plane Analytic Geometry and Higher Algebra	3	82
Physics I	General Physics	3	88
Military Science II	Field Regulations, Manual of Guard Duty	1	84
Mathematics II*b*	Differential and Integral Calculus 3	5	82
and			
Physics II	General Laboratory Physics 2		88
or			
Zoology I	General Zoology 3		89
and			
Chemistry II	General Laboratory Chemistry 2		70
or			
History II	The United States since 1783. 3		77
and			
Chemistry II	General Laboratory Chemistry 2		70
or			
Physics II	General Laboratory Physics 2		88
		21	

Junior Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
**Mathematical-Physical Group:*			
Mathematics III*a*	Differential and Integral Calculus, continued	3	83
Mathematics III*b*	Solid Analytic Geometry, Theory of Equations, Advanced Calculus, Differential Equations.	2	83
A Second Modern Language		3	84
Electives		10	64
		18	
**Chemical Group:*			
Chemistry III	Qualitative Analysis Laboratory	3	70
Chemistry IV	Qualitative Analysis Laboratory	2	70
Chemistry V*b*	Chemical Technology	3	70
Geology I and II	General Geology; Mineralogy	5	75
Electives	To be chosen from Elective Group	6	64
		19	
**Natural History Group:*			
Bacteriology I and Geology I	General Bacteriology / General Geology	5	90 / 75
Zoology II	Histology and Physiology	5	89
Electives	To be chosen from Elective Group	8	64
		18	
**Political Science Group:*			
History III	French Revolution and Nineteenth Century Europe	3	77
Economics I	Principles of Economics	3	78
French I or German I	Elementary Course / Elementary Course	5	84 / 85
Electives	To be chosen from Elective Group	9	64
		20	

*At the beginning of the junior year the student will select one of the four groups offered and will take the required and elective hours of the group during his junior and senior years.

Senior Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
**Mathematical-Physical Group:*			
Mathematics IV	Differential Geometry	3	83
Electives	To be chosen from Elective Group	12	64
		15	
**Chemical Group:*			
Chemistry VII	Chemical Laboratory	7	71
Electives	To be chosen from Elective Group	8	64
		15	
**Natural History Group:*			
Biology	To be chosen from Advanced Courses	5	89
Electives	To be chosen from Elective Group	10	64
		15	
**Political Science Group:*			
Political Science I	Government of the United States.	3	79
French II	Intermediate Course	3	85
or			
German II	Intermediate Course		85
Electives	To be chosen from Elective Group	9	64
		15	

*At the beginning of the junior year the student will select one of the four groups offered and will take the required and elective hours of the group during his junior and senior years.

ELECTIVES

Regulations.—Upon registration for the Junior year, each student shall submit his choice of electives to the Dean of the College.

In the A.B. Course at least nine hours of Junior and Senior electives must be taken from the two groups in which the major-subject does not fall. Of these nine hours, at least three must be taken each year.

In the B.S. Course, Juniors shall elect not more than two subjects in the language and philosophical groups. Seniors shall elect not less than one subject in the philosophical group, and at least one in the science group.

No student shall elect more than the required number of electives without the approval of the Dean of the College.

In the Junior year A.B. Course, a modern language may be substituted for either Latin or Greek, with the approval of the Dean of the College.

ELECTIVE GROUPS

I. Language Group.
English,
Latin,
Greek,
French,
German,
Spanish,
Italian.

II. Philosophy Group.
Psychology,
Ethics,
Logic,
Bible IV,
History,
Pedagogy,
Public Law,
Economics,
Sociology.

III. Science Group.
Mathematics,
Agriculture,
Astronomy,
Chemistry,
Physics,
Geology,
Zoology,
Botany,
Physiology,
Bacteriology,
Surveying,
Mechanics,
Drawing,
Descriptive Geometry.

DEPARTMENTS OF INSTRUCTION

ANCIENT LANGUAGES

PROFESSOR ANDERSON

The study of the classics contributes largely to general culture. In addition to the recognized and peculiar disciplinary value of such studies, and their conspicuous service in cultivating the literary sense and developing literary taste they have a more immediate value and office as aids to the comprehension and interpretation of modern languages and literature. A thorough study and a full understanding of the modern languages, especially the Romance Languages and our own tongue, demand a considerable preliminary acquaintance with Latin and Greek. Thus from two points of view, that of their own intrinsic beauty and value as culture studies, and that of subsidiary aids to the study of other and modern languages, Latin and Greek command our attention, and call for a large place in any curriculum which proposes to issue in a liberal education.

The following courses are offered for the coming year:

LATIN

LATIN I.—Livy, Book XXI or XXII or other selections; Ovid, about 2,000 verses selected from his various works, but mainly from the Metamorphoses; Virgil, Aeneid, Books I–IV; Versification, with especial reference to the Dactylic Hexameter and Pentameter; weekly exercises in Prose Composition; Grammar. (*Required of A.B. students; both semesters, Freshman year, 3 hours.*)

LATIN II.—Selections from the Letters of Cicero and Pliny; selections from the Satires, Epistles, Odes, and Epodes of Horace, with a study of the Horatian Metres; weekly exercises in Prose Composition; Grammar. (*Required of A.B. students; both semesters, Sophomore year, 3 hours.*)

LATIN III.—Juvenal's Satires, with some omissions; Tacitus, parts of the Histories or Annals; Selections from Catullus, Tibullus, Propertius, and Ovid. (*Elective; both semesters, Junior year 3 hours.*)

LATIN IV.—Several plays of Plautus and Terence; Tacitus, Germania or Agricola; selections from Seneca, Gellius and Quintilian. (*Elective; both semesters, Senior year, 3 hours.*)

LATIN V*b*.—History of the Roman Literature, preceded by a short study of Roman Life and Customs. (*Elective; second semester, 3 hours.*)

GREEK

GREEK I.—The forms and most important principles of the syntax will be learned from a beginner's book. The student will have numerous exercises, partly oral, partly written and some practice in conversation and sight-reading. Then one book of Xenophon's Anabasis will be read with exercises in Prose Composition and study of the Grammar. (*Elective; 5 hours.*)

GREEK II.—Xenophon's Anabasis, Books II, III and IV; Selections from Lucian and the easier dialogues of Plato; sight translation; Prose Composition; Grammar. (*Elective; 3 hours.*)

GREEK III.—Select orations of Lysias or other Attic orators, with informal talks on Athenian laws and customs; parts of the Iliad and Odyssey of Homer; Prosody; Prose Composition. (*Elective; 3 hours.*)

GREEK IV.—Selections from the Greek historians, especially Herodotus and Thucydides; selections from the Greek dramatists, especially Euripides and Sophocles; selections from the lyric fragments of Alcaeus, Sappho, etc. (*Elective; 3 hours.*)

GREEK V*a*.—A study of the history of Greek Literature preceded by a short study of Greek Life and Customs. A knowledge of the Greek language is highly desirable, but is not required for this course. (*Elective; first semester, 3 hours.*)

GREEK VI (BIBLE III.)—Selections from the Septuagint and from the New Testament. See page 67. (*Elective both semesters, 3 hours.*)

BIBLICAL INSTRUCTION

PRESIDENT MURPHREE

The following courses are offered, embracing such aspects of Biblical study as the University is prepared to give, with a view to providing a major subject in the Bachelor of Arts curriculum, which will allow students who desire to begin preparation in

the University for such work as Secretary or Physical Director of the Young Men's Christian Association, for welfare work in mills or social settlements, or for the ministry, to specialize in this direction. The courses offered will be conducted by the instructors in the departments under which the various aspects of the subject naturally fall and will be given in a spirit free from any narrow sectarianism.

BIBLE I*a*.—*Old Testament History*.—In the first semester the student will be made familiar with the history of the Israelitish nation as narrated in the historical books of the Old Testament; the connections between sacred and profane history will be discussed; and some conception of the development of the cultural life of the nation will be gained.

BIBLE I*b*.—*New Testament History*.—In the second semester, the student will use as a text primarily the New Testament itself, and a thorough knowledge of the story of the life of Christ and the development of the early church under the ministry of the Apostles will be the main end in view. A correlation of this with world history, and lectures on wider reaches of the subject will be attempted. This course will be given by President Murphree. (*Elective for Juniors and Seniors; both semesters, 3 hours.*)

BIBLE II.—*The English Bible as Literature*.—In this course the various literary types found in the Bible will be studied and the excellence of the work as compared with other great examples of literature will be discussed. The diction of the 1611 version will be compared with that of earlier and more recent translations, and its effect upon English literature will be demonstrated. This course will be given by Professor Farr. (*Elective for Juniors or Seniors; both semesters, 3 hours.*)

BIBLE III (GREEK VI).—*Old and New Testament Greek*.—Selections from the Septuagint and from the New Testament will be studied; class and parallel translations; the vocabulary, grammar, and stylistic features of the selections will be noted. This course will be given by Professor Anderson. (*Elective for Juniors and Seniors; both semesters, 3 hours.*)

BIBLE IV.—*The Bible as an ethical and religious guide*.—The time allotted to this course will be spent in the consideration of the Bible as a guide for human conduct. Those parts of both the

Old and the New Testaments which bring out most vividly and directly the moral and religious elements will receive most attention. The course will aim to give to each student that appreciation of the Bible which all men should have. Lectures, Bible readings, studies of great sermons, and a text on Evidences of Christianity suggest in a general way how the course will be conducted. This course will be given by Professor Thackston. (*Elective for Juniors and Seniors; both semesters, 3 hours.*)

BOTANY

PROFESSOR FLOYD

The department is well equipped for carrying on the work. It has large, well-lighted laboratories, furnished with Caldwell laboratory tables, supplied with dissecting sets and simple and compound microscopes for each student. There is also physiological apparatus, stains, mounting material, microtomes, paraffin baths, charts, and a small herbarium to which additions are made each year.

Plants for study can be easily obtained at all seasons of the year. The flora of the vicinity is rich in the number of important species and additional material may be secured from the horticultural grounds.

BOTANY I.—*General Botany.*—This embraces the study in the classroom and laboratory of the structure, morphology, evolution, and classification of plants. Work is done on special types, beginning with the simplest and advancing to the more complex. Field work is undertaken during the spring months. (*Required of Scientific, Agricultural, and Pedagogical students; both semesters, Freshman year, 3 hours.*)

BOTANY II.—*Plant Physiology.*—The life processes of plants, such as how water is taken up and disposed of, relation to the soil, nutrition, respiration, irritability, etc., are directly investigated. Much of this is done in the laboratory and garden. (*Required of Agricultural students; elective for Scientific students; first semester, Sophomore year, 5 hours.*)

BOTANY III.—*Histology.*—This is largely laboratory work. The structure and development of the tissues of the higher plants in relation to their function is studied Practice is given in methods of fixing, staining and mounting microscopic slides.

(*Required of Agricultural students in Agronomy and Horticultural groups; elective for Scientific students in Junior and Senior years; second semester, 5 hours.*)

BOTANY IV.—*Plant Pathology.*—Lectures and laboratory work. A study of the nature and cause of plant diseases, including a systematic consideration of parasitic fungi. The prevention of disease, the relation of crops and fungicides, are considered. (*Required of Agricultural students in Agronomy and Horticultural groups; elective for Scientific students who have had Botany I and II; first semester, Senior year, 3 hours.*)

BOTANY V.—*Advanced Plant Pathology.*—Types of fungi of special economic importance in the State, including those parasitic on San José scale and whitefly are cultivated, their life histories traced, and their growth and spread on natural hosts investigated. (*Required of Agricultural students in Agronomy and Horticultural groups; elective for Scientific students who have had Botany IV; second semester, Senior year, 5 hours.*)

CHEMISTRY

PROFESSOR FLINT

The facilities for instruction in chemistry compare favorably with those of the larger institutions of the South and are being steadily improved. The department is equipped with the necessary apparatus and material for instruction in general inorganic and organic, analytical and industrial chemistry.

Beginning with the Sophomore year, all students in all the courses are required to take General Chemistry. In the scientific courses, the Junior year is devoted mainly to Qualitative, the Senior year to Quantitative Analysis. Abundant laboratory work is offered in all of these courses.

CHEMISTRY I.—This course is on general Inorganic Chemistry. During the first semester, the non-metallic elements are studied by means of a text-book, lectures and recitations. Special attention is given to the principles underlying chemical union, and the theories and laws which govern the science.

In the second semester the metals and their more important compounds are studied in the same manner. (*Required of A.B. students, Junior year; B.S. students, Sophomore year; both semesters, 3 hours.*)

CHEMISTRY II.—This is a laboratory course in general chemistry. In order to impress the principles of the science upon the minds of the students, they are required to repeat in the laboratory many of the experiments seen in the lecture-room, taking notes of the same, and writing the chemical reactions as far as possible. Each one is required to perform over a hundred experiments designed to illustrate chemical principles, including the preparation of many of the elements and their most important compounds.

In the second semester the laboratory work is designed to study the reactions of the metals with a view to their classification. During this semester a portion of the time is devoted to a thorough course in dry analysis. (*Two exercises a week throughout the Sophomore year, required of all students in the Chemical and Biological groups of the Scientific curriculum.*)

CHEMISTRY III.—This is a laboratory course in qualitative analysis, in the Junior year. (*Three exercises a week, elective in the A.B. Course.*)

CHEMISTRY IV.—Includes Course III, with two additional exercises a week in the same line of work (*Offered as an elective in the Science Courses, and required in the Chemical Course.*)

CHEMISTRY V*a*, a course in Organic Chemistry, and CHEMISTRY V*b*, a course in Chemical Technology, are given in alternate years.

During the year 1912–1913, the course in Chemical technology will be given. The course in chemical technology comprises a consideration of the chemical principles involved in the manufacture, refining and preparation of the leading products of commercial importance. "Thorp's Outlines of Industrial Chemistry" is used as a text, lectures being given occasionally enlarging upon or explaining the subject-matter of the book. Among the subjects studied may be mentioned fuels, sulphuric acid, the soda industry, the chlorine industry, fertilizers, cements, glass, pigments, coal tar, mineral oils, soap, starch, sugar, fermentation industries, explosives, textile industries, paper, leather, etc. In connection with this visits will be made to such factories and chemical industries as may be accessible. (*Three hours a week throughout the Junior year, required of students in the Chemical Course.*)

The course in Organic Chemistry includes lectures, recitations and optional laboratory work. The laboratory work is designed to illustrate the various principles as given in the text, as well as practice in making pure organic preparations. It comprises two periods of two hours each, per week, and is optional to those taking this course.

A short course of lectures on the subject of metallurgy, in the latter part of the semester, will be given if asked for, in which the chemistry involved in the reduction and fabrication of the more useful metals, as iron, copper, zinc, lead and silver, is explained. (*Three hours a week throughout the Junior year, required of students in the Chemical Course.*)

CHEMISTRY VI.—This is a laboratory course in Quantitative Analysis. (*Elective in the Senior year to students in the B.S. Courses; 3 hours a week.*)

CHEMISTRY VII.—In this course five exercises a week are devoted to laboratory work. During the first semester this is given to Quantitative Analysis, the exercises being selected with a view to familiarizing the students with the leading quantitative operations involved in the gravimetric, volumetric and electrolytic methods in vogue. As far as possible, the work of each individual is selected to aid especially in the line of work he may wish to pursue in the future, as medicine, pharmacy, analytical chemistry, etc. (*Seven hours a week throughout the Senior year, required of students in the Chemical Course.*)

CHEMISTRY VIII.—A course of lectures in Agricultural Chemistry, embracing the chemistry of soils, the atmosphere, plant and animal growth and feeding, fertilizers, dairy products, insecticides, etc. (*Three hours a week for one semester in the Senior year, required of students in the Agricultural Course.*)

ENGLISH

PROFESSOR FARR

The work of this department is designed to meet the requirements for a practical and liberal education, and is regarded both as a necessary auxiliary to the training in technical courses, and as an important factor among the liberalizing studies. The three sides of the subject, Rhetoric, Linguistics, and Literature, are presented as fully as the time allotted will permit. While

Rhetoric and Composition are especially stressed in the lower classes, literary studies in the higher, and linguistic work in electives, still the attempt is made to keep the three viewpoints before all classes as necessary to a mastery of their native language.

ENGLISH I*Aa.*—*History of American Literature.*—The object of the course is to give the student a general knowledge of the outlines of American Literary History, a special interest in a few important topics, and a first-hand acquaintance with some of the more important pieces of literature. To this end, the class-room work will consist of recitations upon an elementary text, talks by the instructor, short papers by the individual students, and a close study of a few American classics. In addition, the student will be required to write weekly compositions and to report upon an assigned private reading list. (*First semester; all except Engineering Freshmen*, 3 *hours.*)

ENGLISH I*Ab.*—*History of English Literature.*—The method of instruction outlined above will, in the second semester, be applied to the History of English Literature The weekly compositions and the private reading course on American Literature will be continued throughout the year. (*Second semester; all except Engineering Freshmen*, 3 *hours.*)

ENGLISH I*B.*—*Composition and Rhetoric.*—This course will be mainly a composition course, using a text-book in Rhetoric of a grade somewhat between those of a standard high school text and of an advanced college type, but giving a minimum of rhetorical theory with a maximum of writing. (*Both semesters; Engineering Freshmen*, 3 *hours.*)

ENGLISH II*A.*—*Advanced College Rhetoric.*—This course is designed to train the students in methods of clear and forceful expression. Throughout the year instruction is carried on simultaneously in formal rhetoric, in rhetorical analysis and in theme writing, the constant correlation of the three as methods of approach to the desired goal being kept in view. In addition a private reading course is assigned to the individual student. (*Throughout the year for all except Engineering Sophomores*, 3 *hours.*)

ENGLISH II*B.*—*Exposition.*—This course will be a study of a

text on the art of exposition; the analysis of a number of examples of this kind of composition; and the writing of expository themes, especially those suggested by the student's work in his major department. (*Both semesters, Engineering Sophomores, 1 hour.*)

ENGLISH III*a*.—*Milton and the Epic.*—This course centers in a study of the Paradise Lost, around which are grouped studies in the Age of Milton and in the Epic as a type in Comparative Literature. The first four books of the poem are read in class. Written reviews on the remaining books alternate each week with essays from the student and lectures by the instructor on various phases of the subject. A reading course in the minor poets of the age and in the English translations of the great Epics is assigned to each student. (*Elective; first semester of Junior year, 3 hours.*)

ENGLISH III*b*.—*Shakespeare and the Drama.*—This course follows the above method. Three of the Shakesperian plays are read in class. On eight others a written review is held each fortnight and on the alternate week essays are written and lectures are given by the instructor. Readings in the English Drama from the Cycle plays to contemporary production are assigned to the student. (*Elective; second semester of Junior year, 3 hours.*)

ENGLISH IV*a*.—*The English Novel.*—In recognition of the fact that a large part of the reading of most Americans is in this line a course in the Novel is offered. This subject is studied in suitable texts from the two sides of chronological development and of technique; and the student reads a list of novels chosen to illustrate chronology and variety of species, analyzes minutely one novel from the technical side, masters the entire work and life of one novelist, and compares closely a novel and a dramatized version of it. It is hoped that the student may be so grounded in the classics and his taste and judgment so trained that his reading in this class of literature may not become mere intellectual dissipation. (*Elective; first semester of Senior year, 3 hours.*)

ENGLISH IV*b*.—*The Romantic Revival.*—This course is planned as a study in literary movement. The causes and forces which underlie the movement, its phenomena and the authors and works which exhibit them, and a comparison with other

movements in literature will be considered. The work of Prof. Beers will be used as a basis and the student will be led, by means of extensive reading, by investigation and essays and by lectures on the wider ranges of the subjects, to realize the truth of his statements. (*Elective; second semester of Senior year*, 3 *hours.*)

ENGLISH V.—*Anglo-Saxon Grammar and Reading.*—The student is drilled in the forms of the early language and an elementary view of its relations to the other members of the Aryan family and its development into Modern English is given. The texts in Bright's Anglo-Saxon Reader are studied and Cook's edition of the Judith is read. (*Elective for Juniors, both semesters*, 3 *hours.*)

ENGLISH VI.—*Chaucer and the Middle English Grammar.*—During the first semester the works of Chaucer are read in and out of class. The pronunciation, grammatical forms, scansion, condition of text, analogues and sources are closely examined. During the second semester, Morris and Skeats' Specimens, Part II, is studied in connection with informal lectures on Middle English viewed as developing from Anglo-Saxon into Modern English. (*Elective for Seniors who have taken English V; both semesters*, 3 *hours.*)

ENGLISH VII*a.*—*American Poetry.*—This course will take a rapid survey of the development of poetry in the United States and will then center in a critical study of a few of the more important authors (Bryant, Whittier, Longfellow, Emerson, Lowell and Poe). (*Elective; first semester*, 3 *hours.*)

ENGLISH VII*b.*—*Southern Literature.*—A detailed study of the literature of the South with extensive reading and essay work, and an examination of the claims of Florida authors, will be made. (*Elective; second semester*, 3 *hours.*)

EXPRESSION AND PUBLIC SPEAKING

MR. CHAPMAN

EXPRESSION AND PUBLIC SPEAKING.—In the comparatively brief course in Expression and Public Speaking during the years 1910–12, particular attention has been given to the importance of establishing a correct method of breathing, to the correction of faulty articulation, and to the principles of interpretation by

voice, gesture, and facial expression. It is believed that the interest shown in the work of the Department gives promise of a greatly increased interest during the coming year, and it is confidently expected that it will be possible to offer a much longer and more comprehensive course than was possible during the year recently closed.

On account of lack of funds a small tuition fee will be charged in this department for the present.

GEOLOGY

PROFESSOR DAVIS

GEOLOGY I.—*A course in the General Principles of Geology.*—Four hours class and one hour of laboratory work. Attention is given in the laboratory to the principal types of rocks, and to the more common fossils. Students who select this course are expected to be able to take occasional Saturday excursions. (*Required of Juniors of the Natural History and Chemical groups, and of Agricultural students; elective; first semester, 5 hours.*)

GEOLOGY II.—*Mineralogy.*—Moses & Parson's Mineralogy. Class work on the general character of minerals, including the elements of crystallography. Laboratory determination of minerals. (*Required of Juniors of the Chemical group; elective; second semester, 5 hours.*)

GEOLOGY III.—*Historical Geology.*—Text and laboratory work.—The geological history and development of continental areas. The geological history and development of life. Chamberlin & Salisbury's Earth History is used as text for the course. (*Alternate with Botany and Zoology for Seniors of the Natural History group; both semesters, 5 hours.*)

LABORATORY.—The department is provided with a well-lighted, comfortable laboratory, equipped for the courses offered. The United States Geological Survey Educational Series of rocks is accessible for the use of students of geology. For students of mineralogy there is provided a blowpipe collection of one hundred selected minerals species; an accessory blowpipe collection of miscellaneous minerals; a crystal collection of fifty natural crystals; and a reference collection of choice mineral specimens. Historical Geology students are provided with a collection of fossils illustrating the distribution and development of organisms.

HISTORY AND ECONOMICS

PROFESSOR BERNARD

This department attempts to introduce the student to the social sciences in the hope that he may receive an impulse toward an intelligent appreciation of the forces at work in the complex society of which he is a member, and that he may also be inspired toward, as well as in some measure equipped for, a wise discharge of his duties as a citizen. Courses in *History* find a place here for the reason that the present structure of our society can be understood only through a study of the past. Work in *Economics* is given not only because the struggle for existence and for the material means of satisfying wants has been in the past one of the dominant forces in social evolution, but also because that struggle presents to-day perhaps the most serious body of problems with which the citizen has to deal. *Political Science* is made a subject of study in order that the student may become acquainted with the nature and function of government as an agency of order and of social betterment. *Sociology*, while it is the latest of the social sciences to develop, is perhaps the most important, since to it belongs the double task of making a scientific survey and appraisal of a large field of facts in our society which have long been neglected or only cursorily examined, and of correlating the work of the other social sciences in such a way that problems of every-day life may have some light thrown upon them.

HISTORY

HISTORY I.—*Modern European History.*—In this course the student is taken through a rapid introductory survey of the workings of the physical and mental factors in the development of civilizations from the founding of the ancient empires to the renaissance in Europe. This is followed by an analysis of the political, religious, economic, esthetic and other social factors at work in the awakening of Europe, which led over into the political, religious and moral contest known as the Reformation. The gradual transformation of feudalism, the rise of industrial free cities, and the emergence of monarchical absolutism and national integration are traced in their relation to the establishment of trade routes, technical inventions, and geographical discovery. This is followed by a sketch of the beginning of modern science,

democratic philosophies, and the transformation of absolutisms into democratic institutions. An attempt is made to give due consideration to geography, population, science and invention as historical forces. A text-book is used and collateral reading required. (*Required of A.B. and General Science students; both semesters, Freshman year, 2 hours.*)

History II.—*American History.*—A brief survey of colonial development is followed by a more elaborate study of the period of constitutional experiment, sectional contests, and the national adjustment which resulted in the era of good feeling. The development of New England factory industry, of Southern agriculture, and of Western transportation problems is next considered, especially with reference to their bearing upon national problems. The development of democratic institutions, the expansion of territory, the opening of the West, the war between the States, reconstruction, the tariff struggle, and the problem of corporations are other questions considered. (*Required of A.B. students; both semesters, Sophomore year, 3 hours.*)

History III*a*.—*The History of Democracy through the French Revolution.*—In this course democratic beginnings in discussion and institutions are traced down to the social and economic renaissance of the Eighteenth Century. A study is then made of the political, economic and social conditions of the Eighteenth Century civilization with reference to their bearing upon the revolution in thought and institutions which followed. The forces and movements of the American and French revolutions are examined, and the career of Napoleon is considered with reference to the disturbed conditions of his time. Readings, reports and lectures. (*Junior or Senior elective; first semester, 3 hours.*)

History III*b*.—*The History of Democracy Since 1815.*—The reassembling of the democratic forces after the Congress of Berlin is taken as the starting point. The series of petty revolutions is studied with reference to the economic and political conditions of the various countries where they occurred. This is followed by the more detailed study of the emergence and development of definite economic, social, and political programs in different parts of the world from 1832 to the present. Readings, reports, and lectures. (*Junior or Senior elective; second semester, 3 hours.*)

History IV*a*.—*Industrial History of England.*—This course traces the development of English industry and commerce, and the attempt is made to correlate this development with that of the political and social life of the nation and the empire. (*Junior or Senior elective; first semester*, 3 *hours.*)

History IV*b*.—*Industrial History of the United States.*—This course attempts to survey the growth and diversification of industrial activities in the United States, and to point out some of their political and social consequences. (*Junior or Senior elective; second semester*, 3 *hours.*)

History V*a* or *b*.—*History and Civilization of the Orient.*—In this course some one of the modern oriental nations will be taken up and studied with reference to the development of its institutions, resources, technology, and mental life. An attempt will be made to show some of the relations of the country studied to the international problems of the future. The nation selected for study in 1912–1913 is China. (*Open to those who have had History I; either semester*, 1 *hour.*)

ECONOMICS

Economics I.—*Principles of Economics.*—This is an introductory course describing the leading characteristics of those human activities which are called economic, and presenting some of the general principles which underlie the value and price of goods as well as those which underlie the distribution of income into rent, wages, interest, and profits. Considerable time is devoted to the discussion of such practical economic problems as those that relate to money, taxation, international trade and the tariff, the labor movement, the trusts and transportation. Socialism and other plans of social reform also receive some consideration. The course is based on a text-book, but constant reference is also made to the works of various authors. (*Junior or Senior elective; both semesters*, 3 *hours.*)

Economics II*a*.—*Economics of Agriculture.*—This course will consider especially such problems as the size of farms, agricultural methods, rental systems, labor problems, marketing of agricultural products, transportation, land taxation, capitalization of farm values, farm management, farm accounting, in their economic relations. This course should be taken in connection

with Sociology II. (*Open to those who have had Economics I and to others with sufficient preparation; first semester, 3 hours.*)

ECONOMICS II*b*.—*Public Finance.*—It is the purpose of this course to study the principles which underlie governmental expenditures and revenue. The revenue systems of the leading countries are examined comparatively, and the principles of taxation as presented by such writers as Adams, Seligman, Plehn, and Bastable, are studied in order to be able to estimate the merits and defects of our American methods of taxation in their national, State and local aspects. (*Elective for those who have had Economics I; either semester, 3 hours.*)

ECONOMICS II*c*.—*Money and Banking.*—It is the aim of this course to analyze the nature and functions of money and credit and banking, and to trace the history of money and banking in the United States with incidental reference to the experience of other countries in these matters. It is also proposed to discuss schemes of currency reform and other monetary problems. (*Elective for those who have had Economics I; either semester, 3 hours.*)

ECONOMICS II*d*.—*International Trade and the Tariff.*—This course describes the nature of international trade, traces the history of the tariff in the United States, and the history of our commercial relations with other countries. (*Elective for those who have had Economics I; either semester, 3 hours.*)

ECONOMICS II*e*.—*History of Economic Thought.*—This course traces the development of economic thought from the time of Adam Smith to the present by reference to the writings of certain typical economists of England, Germany, Austria and the United States. (*Elective for those who have had Economics I; either semester, 3 hours.*)

NOTE.—Economics I is offered each year, while Economics II*a*, II*b*, II*c*, II*d*, II*e* are half-year courses, and it is planned for only two of them to be given in any one year, thus making three hours per week throughout the year.

POLITICAL SCIENCE

POLITICAL SCIENCE I*a*.—*American Government and Politics—National.*—A historical introduction outlining the development

of the constitution and of party machinery and practice is followed by a study of the evolution and modification of the dual theory and of the theory of separation of powers, the development of nationalism, the expansion of the judiciary, and the conservation movement. The organization and working of the governmental departments are also considered. (*Junior or Senior elective; first semester, 3 hours.*)

POLITICAL SCIENCE I*b.*—*American Government and Politics—State and Local.*—The development of State constitutions and the relation of State law and administration to national law and administration are first considered. Next the working of the various departments of State and local government is considered, with special reference to the administrative side. Considerable attention is devoted to recent legislative and administrative methods being tried out in some of the States, such as municipal home rule, centralization of State administration, public service commissions, direct primaries, initiative and referendum, etc. (*Junior and Senior, elective; second semester, 3 hours.*)

POLITICAL SCIENCE II.—*European Governments.*—An analysis and comparison of the constitutional systems and governmental methods of the leading States of Europe is attempted in this course. The governments of England, France, Germany and Switzerland will receive special attention. (*Senior elective; first semester, 3 hours.*)

SOCIOLOGY

SOCIOLOGY I*A.*—*Principles of Sociology.*—This is an introductory course designed to acquaint the student with some of the more fundamental facts and problems of society. The influence of geography, climate, soil, population, invention, custom, tradition and science in forming social organizations is first considered. This is followed by an examination of selected current social problems, such as the family, immigration, race conflicts, poverty, crime, the city, the country, present educational methods, eugenics. Finally a study of the concrete forms, methods, and problems of human association is made. (*Open to Juniors and Seniors; first semester, 3 hours.*)

SOCIOLOGY I*Ba.*—*Modern Charities.*—The purpose of this course is to acquaint the student with methods of dealing with

those dependent upon the State for support. The principal topics discussed are the nature and causes of poverty and pauperism, the standard of living, remedial legislation and control, the almshouse, outdoor relief, unemployment, morbidity, dependent children, the insane, the feeble-minded, the epileptic, the inebriate, cottage and congregate systems, colonies, history of poor relief, institutional administration, charity administration, public policy in charity. (*Open to those who have had Sociology IA; second semester, 3 hours.*)

Sociology I*Bb.*—*Criminology.*—The nature and causes of crime, classification of criminals, the police and police methods, criminal procedure in the courts, prevention of crime, reformation and punishment of the criminal, penal systems, prison systems, penal labor, parole, indeterminate sentence, penal and rehabilitating colonies, are some of the topics considered. Special emphasis is placed upon prevention and reformation. This course is alternate with the preceding one. (*Open to those who have had Sociology IA; second semester, 3 hours.*)

Sociology II.—*Rural Sociology.*—This course is a study of the problems of rural life. It considers in particular the causes of the drift to the city, the rural school, the country church, rural amusement and cultural agencies, the influence of improved facilities for communication and transportation, rural health and hygiene. This course should be taken as supplementary to Economics II*a*. (*Open to those who have had Sociology IA and to others with sufficient preparation; second semester, 3 hours.*)

Sociology III.—*History of Sociological Thought.*—This course traces the development of the theories of social evolution, organization, and control to the present. Special attention is given to the development of theory in the Nineteenth Century, and in particular to the Utilitarian democracy; to Comte, Spencer and Ward; to the social conflict school, the imitation school, the social psychologists; and to the organismic schools. This course should be taken in connection with Economics II*e*. (*Open to those who have had Sociology IA; first semester, 3 hours.*)

Sociology X.—*Current Public Problems.*—In this coures students who meet the requirements will be permitted from time to time to choose some public problem of general interest for

study with the instructor. It is planned to have the course meet as far as possible the demands of intercollegiate debates, contests, etc., as well as those of general citizenship. (*Elective, subject to permission of instructor; either semester, 1 hour.*)

MATHEMATICS AND ASTRONOMY

PROFESSOR KEPPEL

MATHEMATICS

The work in the Department of Mathematics is planned with a threefold purpose in view:

1. For students who intend to *specialize* in Mathematics it provides the preparation for more advanced work. Several advanced courses are offered each year for this class of students.

2. To those who need Mathematics as an *instrument* it offers opportunities to become familiar with this instrument. The application of Calculus not only to Physics, Chemistry and Engineering, but even to such seemingly remote realms as Psychology and Political Economy, makes it advisable that this class should continue the study of Mathematics at least so far as to include Calculus.

3. To others it gives logical training in Analysis and Proof, introduces them to that scientific method par excellence of the Hypothesis, and develops the idea of a deductive system in its classical form. Elementary (Euclidean) Geometry is studied with this purpose in view by all members of the Freshman Class.

The following courses are offered each year:

MATHEMATICS I*a*.—Solid Geometry. (*Required of all Freshmen; first semester, 5 hours.*)

MATHEMATICS I*b*.—Plane and Spherical Trigonometry. (*Required of all Freshmen; second semester, 5 hours.*)

MATHEMATICS I*c*.—Spherical Trigonometry. (*Required of all students who offer Plane Trigonometry for entrance but who have not had the Spherical Trigonometry; second semester, 1 hour.*)

MATHEMATICS II*a*.—Plane Analytic Geometry and College Algebra. (*Required of all students except those in Pedagogy, or those in the College of Agriculture; both semesters, 3 hours.*)

MATHEMATICS II*b*.—Differential and Integral Calculus. (*Required of students in the College of Engineering and in the Mathe-*

matical-Physical courses in the College of Arts and Sciences; both semesters, 3 hours.)

MATHEMATICS III*a*.—Differential and Integral Calculus (continued). (*Required of all students in the College of Engineering and in the Mathematical-Physical courses in the College of Arts and Sciences; both semesters, 3 hours.*)

MATHEMATICS III*b*.—Solid Analytic Geometry and Theory of Equations (first semester). Advanced Calculus and Differential Equations (second semester). (*Required of all students in the College of Engineering and in the Mathematical-Physical courses in the College of Arts and Sciences; both semesters, 2 hours.*)

The following advanced courses, one of which is required of students in the Mathematical-Physical course, are offered for 1912–13:

ADVANCED CALCULUS WITH APPLICATIONS TO GEOMETRY.—The conditions of integrability, the successive extensions to multiple and curvilinear integrals, integration in series and the trigonometric series will be discussed in the first part of the course; the application of Calculus to the Theory of Envelopes, Contact, Curvature and Torsion of twisted curves in the second part. (*Both semesters, 3 hours.*)

MATHEMATICAL SEMINARY.—Subject for the year: Higher Plane Curves. (*Both semesters, 3 hours.*)

ASTRONOMY

In connection with the Department of Mathematics a course in GENERAL ASTRONOMY will be offered, consisting of lectures and recitations, with practical exercises. No knowledge of advanced mathematics is presupposed. (*Elective; both semesters, 2 hours.*)

MILITARY SCIENCE AND TACTICS

MAJOR WALKER

In compliance with the Revised Statutes of the United States this institution maintains a course of instruction in Military Science and Tactics. The aim is to make familiar with the duties which first confront young officers, those who later, through emergency or inclination, find themselves in the military service. Experience has shown that military training not only promotes

physical development and a tendency towards punctuality and system, but that it also fosters self-reliance and strengthens the principles of honor and fair dealing. The course is both practical and theoretical. The practical course consists of drills, target practice and other military exercises. The drills proper occupy time not to exceed 3 hours each week.

The theoretical course, set forth below, consists of recitations supplemented by lectures on pertinent subjects:

MILITARY SCIENCE I.—(a) Infantry Drill Regulations; (b) Small Arms Firing Regulations. (*Required of Freshmen, 1 hour per week.*)

MILITARY SCIENCE II.—(a) Field Service Regulations; (b) Manual of Guard Duty. (*Required of Sophomores, 1 hour per week.*)

MILITARY SCIENCE III.—(a) First Semester. The Service of Security and Information. Elementary Military Engineering. (b) Army Regulations, Company Administration and similar subjects. (*Elective for Juniors and Seniors; 2 hours per week.*)

MODERN LANGUAGES

PROFESSOR CROW

French, German, Italian, and Spanish are the subjects taught in this department. Extensive courses of reading, in and out of class, frequent exercises, oral and written, and studies in the Literature and Languages of the respective countries form the chief features of instruction. Carefully prepared English abstracts of nearly all the parallel reading is required.

Authors and text-books vary from year to year. Though the classics are not neglected, special attention is paid to the literatures of the Nineteenth Century.

Since the session of 1906–07 tables have been set apart in the dining-hall for those wishing to speak German and Spanish.

All of the courses offered below will not be given in any one year.

FRENCH

FRENCH I.—*Elementary Course.*—Drill in pronunciation and important grammatical forms, elementary syntax, dictation, daily written exercises, memorizing of vocabularies and short poems,

translation. (*Modern Language elective for Freshmen; elective both semesters, 5 hours.*)

FRENCH II.—*Intermediate Course.*—Work of elementary course continued, advanced grammar, including syntax, prose composition, translation of intermediate and advanced texts, sight reading, parallel. (*Modern Language elective for Sophomores; elective; both semesters, 3 hours.*)

FRENCH III.—*Advanced Course.*—Syntax, stylistic, composition, history of French Literature, selections from the dramatists or novelists as class may decide. (*Elective; both semesters, 3 hours.*)

FRENCH IV.—*Old French.*—A course will be offered in Romance Philology open only to those who have taken French III, and Latin II. (*Elective; both semesters, 3 hours.*)

GERMAN

GERMAN I.—*Elementary Course.*—Drill in pronunciation and important grammatical forms, elementary syntax, dictation, daily written exercises, memorizing of vocabularies and short poems, translation. (*Modern Language elective for Freshmen; elective; both semesters, 5 hours.*)

GERMAN II*a*.—*Intermediate Course.*—Work of elementary course continued, advanced grammar, including syntax, prose composition, translation of intermediate texts, sight reading, parallel. (*Modern Language elective for Sophomores; elective; both semesters, 3 hours.*)

GERMAN II*b*.—A supplementary course in commercial German will be offered to students who are taking or have concluded German II*a*. For the present this course will not count towards a degree. (*Elective; both semesters, 2 hours.*)

GERMAN III.—*Advanced Course*—Syntax, stylistic, composition, history of German Literature, selections from the dramatists or novelists. (*Elective; both semesters, 3 hours.*)

GERMAN IV.—*Scientific Reading Course.*—A course in reading scientific German will be offered to students who have completed German II. The nature of the course will depend largely upon the needs of the students taking it. (*Elective; both semesters, 3 hours.*)

GERMAN V.—Courses will be offered in Middle and Old High German open only to those who have taken German III. (*Elective; both semesters*, 3 *hours.*)

ITALIAN

ITALIAN I.—*Elementary.*—To students desiring to specialize in the Romance Languages, an elementary course in Italian is offered. As students who elect this course will already have some knowledge of formal grammar and of Latin and French, rapid progress will be made. (*Elective; both semesters*, 3 *hours.*)

SPANISH

SPANISH I.—*Elementary Course.*—Drill on pronunciation and important grammatical forms, elementary syntax, dictation, daily written exercises, memorizing of vocabularies and short poems, translation. (*Elective for Junior or Senior year; both semesters*, 3 *hours.*)

SPANISH II.—*Intermediate Course.*—Work of elementary course continued, advanced grammar, including syntax, prose composition, translation, parellel. (*Elective for Senior year; both semesters*, 3 *hours.*)

PHILOSOPHY

PROFESSOR COX

PHILOSOPHY I*a.*—*General Psychology.*—This course aims to acquaint the student with the facts and theories that are current in general psychological discussion. The study will begin with the sensations, the sense organs, and the functions of the brain; the course will then deal with the higher mental functions, such as attention, perception, memory, feeling, emotion, volition, the self, and like topics. (*First semester*, 3 *hours.*)

PHILOSOPHY I*b.*—*Abnormal Psychology.*—A study of the abnormal phases of mental life. Such topics as dreams, illusions, hallucinations, suggestion, hypnotism, hysteria, diseases of the memory, diseases of the will, and other mental disease. Special attention will be given to mental hygiene. (*Second semester*, 3 *hours.*)

PHILOSOPHY II*a.*—*Ethics.*—A general course in which emphasis will be laid upon the Principles of Ethics. This will

involve the study of such topics as goodness, happiness, virtue, duty, freedom, civilization, and progress. Some time will also be given to the history of the various Ethical Systems. (*First semester, 2 hours.*)

PHILOSOPHY II*b*.—*Practical Ethics.*—A study of the moral problems of the individual and social life. (*Second semester, 2 hours.*)

PHILOSOPHY III.—*Logic, Inductive and Deductive.*—This course will emphasize the practice in use of syllogisms, inductive methods, logical analysis, and criticism of fallacies. (*First semester, 3 hours, 1½ hours credit.*)

PHILOSOPHY IV.—*Social Psychology*—A study of the influences of the social environment upon the mental and moral development of the individual. (*Requisite, Course Ia; second semester, 3 hours.*)

PHILOSOPHY V*a*.—*Genetic Psychology.*—A study of the course of development in the child from birth to adolescence. (*Requisite Course Ia; first semester, 2 hours.*)

PHILOSOPHY V*b*.—*Genetic Psychology.*—A study of animal intelligence. The purpose of this course is to give the student a better understanding of animal instincts and intelligence. (*Requisite, course Ia or Va. Second semester, 2 hours.*)

PHILOSOPHY VIa.—*Philosophy of Conduct.*—A study of the problems of Conduct and Religion in the light of contemporary discussions. The aim of this course is to attack the problems of philosophy from the standpoint of the practical problems of everyday life. (*Requisite, course Ia or IIa. First semester, 3 hours.*)

PHILOSOPHY VI*b*.—*Philosophy of Nature.*—The aim of this course is to show Man's relation to Nature, and his place in Nature. It will take up the various philosophical doctrines, such as Animism, Pantheism, Materialism, Realism, Agnosticism, Humanism, Idealism, etc. (*Second semester, 3 hours.*)

PHILOSOPHY VII.—*History of Ancient Philosophy.*—This course will trace the development of philosophic thought from its appearance among the Ionic Greeks to the time of Descartes. Special attention will be given to the philosophy of Plato and Aristotle. (*First semester, 3 hours.*)

PHILOSOPHY VII*b*.—*History of Modern Philosophy*.—This course will take up the study of the movements in modern philosophic thought in Europe. Emphasis will be put upon the philosophy of Descartes, Locke, Kant, Hume and Hegel. (*Second semester, 3 hours.*)

PHYSICS

PROFESSOR BENTON

MR. PERRY

The work of this department is intended to meet the needs, on the one hand, of those who study physics as a part of a liberal education, and on the other hand, of those who will have to apply physics as one of the sciences fundamental to engineering.

Instruction is given by (1) recitations based upon lessons assigned in text-books; (2) laboratory work, in which the student uses his own direct observation to gain knowledge of the subject; (3) lectures, in which experimental demonstrations of the principles under discussion are given; and (4) seminar work in the advanced courses, in which the various members of the class take up different special problems requiring extended study or investigation, and report upon them in turn to the class.

The physical laboratory is well equipped for the experiments usually required in undergraduate laboratory work in the best colleges. The equipment has been greatly increased in the last few years, and additions are made to it from year to year.

The following courses are offered:

Physics I.—General Physics, including mechancis, heat, acoustics, and optics, but not electricity and magnetism. Text-books to be used in 1912-1913: Kimball's College Physics. (*Required of Sophomores, except in the Agricultural course; 3 recitations per week.*)

Physics II.—General Laboratory Physics, to accompany Physics I. Text-book to be used in 1912-1913: Franklin, Crawford and McNutt's Practical Physics. (*Required of Sophomores in the Engineering courses; elective for other students who are taking or have taken Physics I; 2 exercises of 2 hours each per week.*)

Physics III.—General Electricity and Magnetism, being a continuation of Physics I. Text-book to be used in 1912-1913: Franklin and McNutt's Elements of Electricity and Magnetism.

(*Required of Juniors in the Engineering courses: elective for Juniors and Seniors in other courses; 2 recitations and 1 laboratory exercise of 2 hours per week.*)

Advanced Courses in Physics.—Preparation has been made for offering advanced courses in Physics, as electives for Juniors, Seniors and graduate students. Six such courses have been planned, as follows: Advanced Experimental Physics, General Mathematical Physics, Mechanics and Acoustics, Heat, Optics, Theoretical Electricity. Each of these courses is arranged to extend through two semesters and to require three hours per week of class room work, or equivalent time in the laboratory. Any one of these courses will be given when elected by three or more students.

ZOOLOGY AND BACTERIOLOGY

PROFESSOR DAVIS

ZOOLOGY

Zoology I.—*General Zoology.*—Typical examples illustrating the various groups of the animal kingdom are studied, the object being to give the student a comprehensive idea of the structure and physiology of animals. (*Required of Sophomores in General Science, Agricultural and Pedagogical courses; elective; both semesters, 3 hours.*)

Zoology II.—*Histology and Physiology.*—A study of the microscopic structure and physiology of the principal tissues and organs of both vertebrates and invertebrates, special attention being paid to mammals. Thorough training is given in the more important methods of investigation, each student being expected to prepare his own slides. (*Required of Juniors, Natural History group; elective; both semesters, 5 hours.*)

Zoology III.—*Entomology.*—Careful attention is given to the structure of insects in general, after which the insect orders are considered, the student being expected to recognize the various orders and the more common families. Emphasis is given to the economic side of entomology. (*Required of Sophomores, Agricultural course; elective; second semester, 3 hours.*)

Zoology IV.—*Vertebrate Morphology.*—Lectures on the comparative anatomy of vertebrates, accompanied by laboratory

work on representatives of the principal groups. (*Elective; first semester, 5 hours.*)

Zoology V.—*Vertebrate Embryology.*—Lectures on the development of vertebrates with special reference to the early stages. Laboratory work on the development of the chick. (*Elective; second semester, 5 hours.*)

Zoology VI.—*Evolution and Heredity.*—A course of lectures on the evolution of animals and the problems of inheritance. Special attention is paid to the results of recent experimental work. Collateral readings will be assigned. (*Elective for Juniors and Seniors; second semester, 3 hours.*)

(NOTE.—Zoology V and VI will be given in alternate years.)

Zoology VII.—*Physiology and Hygiene.*—A course of lectures and recitations on general physiology, hygiene and sanitation. (*Elective; first semester, 3 hours.*)

BACTERIOLOGY

Bacteriology I.—*General Bacteriology.*—This course is a general introduction to bacteriology and is designed to afford the student a comprehensive knowledge of bacteria, especially in their relation to every-day life. The bacteria found in soil, water, sewage, milk, etc., are considered, concluding with a general discussion of the pathogenic forms. (*Required of Juniors, Natural History group and of Agricultural students; elective; second semester, 5 hours.*)

Bacteriology II.—*Advanced Bacteriology.*—This course consists principally of laboratory work along special lines adapted to the needs of the individual student. Opportunity will be afforded for work on bacteria or parasitic protozoa. (*Elective; first semester, 3 hours. Students desiring to elect this course must first obtain the consent of the instructor.*)

Bacteriology III.—*Advanced Bacteriology.*—A continuation of Bacteriology II. (*Elective; second semester, 3 hours.*)

COLLEGE OF AGRICULTURE

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President of the University.

J. J. VERNON, B.Agr., M.S.A.,
Dean of the College of Agriculture, Professor of Agronomy.

W. L FLOYD, M.S.,
Professor of Horticulture and Botany.

R. D. MALTBY, B.S.,
Professor of Animal Husbandry and Dairying.

J. B. RUTLAND, B.S.A.,
Instructor in Soils and Fertilizers.

JAS. M. FARR, A.M., Ph.D.,
Professor of English.

EDWARD R. FLINT, B.S., Ph.D., M.D.,
Professor of Chemistry.

C. L. CROW, M.A., Ph.D.,
Professor of Modern Languages.

JAS. N. ANDERSON, M.A., Ph.D.,
Professor of Ancient Languages.

LUTHER L. BERNARD, Ph.D.,
Professor of History and Economics.

H. S. DAVIS, Ph.D.,
Professor of Geology, Zoology, and Bacteriology.

H. G. KEPPEL, A.B., Ph.D.,
Professor of Mathematics and Astronomy.

M. B. HADLEY, A.B.,
Instructor in Mathematics.

MAJOR E. S. WALKER, U. S. A., Retired,
Professor of Military Science.

W. L. SEELEY,
Professor of Civil Engineering.

JOHN A. THACKSTON, Ph.D.,
Professor of Education and Inspector of High Schools.

HARVEY W. COX, A.M., Ph.D.,
Professor of Philosophy and Education.

MARY DaCOSTA, *Secretary and Stenographer.*
A. G. COLCLOUGH, *Farm Foreman.*

GENERAL STATEMENT

The College of Agriculture is intended to meet the requirements of the Acts of Congress creating and endowing colleges in the different States. From these Acts it is apparent that recognition of agriculture as a branch of collegiate instruction is a distinctive feature of the institutions founded upon the provisions of the national land-grant act. The aim of the college is to offer young men the best possible equipment for their chosen field of endeavor. The courses comprise both theory and practice, and afford opportunity for gaining both technical knowledge and training in the art of agriculture. Since about one-third of the student's time is devoted to agricultural branches and the other two-thirds to the sciences and cultural studies, a broad, thorough foundation is laid which will enable him, upon graduation, to become either a leader in educational lines or an effective producing agriculturist.

The group courses offered during the Junior and Senior years afford opportunity for selecting that phase of agriculture best suited to the qualifications and taste of the individual, and to better prepare for that particular line of work. Those who wish to pursue general farming will elect the agronomy or animal husbandry group. Those interested in fruit production or market gardening will elect the horticultural group. The chemical group will interest those who wish to become expert agricultural analysts. There is already a demand for teachers well prepared and competent to give instruction in agriculture and this demand no doubt will grow in Florida in the years to come as it has grown in other agricultural States. In order to meet this demand it has been thought best to include an agricultural-pedagogical group. This group will be of special interest to those teachers who wish to specialize in agriculture and become proficient in this growing school subject. Teachers who complete this group will also be competent to give instruction in the sciences required in the high schools of the State. The present demand for experienced agricultural teachers cannot be supplied; therefore the agricultural-pedagogical group forms an attractive and lucrative line for ambitious young teachers. A certificate stating that the agricultural-pedagogical group has been pursued will be granted in addition to the usual degree.

In addition to the four-year course in agriculture leading to a degree, the following short courses are offered:

1. A Two-year Course.
2. A One-year Course.
3. Two Four-month Short Courses.
4. A Farmers' Short Course of Four Weeks.
5. Fourteen Correspondence Courses for Home Study.

Equipment.—The Location of the College of Agriculture.—The headquarters of the College of Agriculture heretofore has been located in Thomas Hall, one of the students' dormitories. The new Agricultural Hall will be ready to occupy at the beginning of the school year 1912-13. The new building, for the erection of which the Legislature of 1911 generously appropriated funds, is now in process of construction. It will not only relieve the present crowded conditions, but will also make it feasible to carry out certain lines of instruction that heretofore have been impossible. After the building is adequately furnished there will remain sufficient funds with which to provide some much needed apparatus, that will materially strengthen the instruction work.

The classrooms and laboratories in the new building have been specially planned to meet the needs of the instruction to be given.

Offices, Classrooms and Laboratories.—Agricultural Hall, when completed, will provide space for department offices; for class rooms in Agronomy, Animal Husbandry, Horticulture, and Agricultural Engineering; for laboratories in soils and fertilizers, crop and grain judging, farm machinery, farm power, irrigation, farm wood-work, farm iron-work, dairying, stock-judging, agricultural library, etc.

The Agronomy Department will occupy four rooms—a large, well-lighted, well-equipped soil laboratory, with an adjoining storage and work room, and a large crop judging laboratory, with an adjoining mouse-proof seed and forage storage room.

The Agricultural Engineering work, which for the present is connected with the Agronomy Department, will occupy three specially equipped laboratories—one laboratory for farm motors and iron work, and two laboratories for farm machinery and wood work.

The office of the Secretary and the Extension work will be located in quarters adjoining the office of the Dean.

The Animal Husbandry Department will be provided with a large live stock judging auditorium arranged with tiered seats, and a stand for animals.

The Dairy work, which for the present is connected with the Animal Husbandry Department, will occupy five rooms—a large general laboratory for the operation of farm dairy machinery, a milk testing laboratory, a dairy bacteriological laboratory, a small boiler room, and a wash room.

The laboratories and judging quarters will be fitted with modern furniture and apparatus for a comprehensive study of both the theoretical and practical sides of the work.

The Horticultural Department for the present occupies quarters in Science Hall.

Many studies are taken in common with students from other Colleges of the University.

The College Farm.—The farm connected with the College of Agriculture, used for instruction purposes and for growing crops with which to feed the instruction herds, consists of 120 acres (80 acres recently purchased), about 20 acres for trucking, 80 acres for pasture and general field crops, 10 acres for orchard, 7 acres for soiling purposes and stock lots, and 3 acres for buildings and grounds, where a hay and machinery barn now stands and where it is contemplated building, as soon as money is available, a horse barn, a sanitary dairy barn, a fertilizer house, additional poultry houses and runs, a packing shed, corn cribs and a farm foreman's cottage.

Live Stock.—The laboratory equipment in live stock is only well begun, but the individuals of the herds are of high grade. There is such great promise for the livestock and dairy industry in Florida that in future much attention will be given to the subject. The equipment will be added to from year to year, as funds become available for the purpose, until representatives of all the important breeds and classes will be available for giving thorough courses in breeds of livestock and judging and score-card work, so helpful in mastering the details connected with stock-raising. During the past year a poultry plant has been started which will be used entirely for instruction purposes.

Library.—The Agricultural Library is small but select. The leading technical books are on file and a fairly complete set of

State Experiment Station and Government Bulletins are maintained. The list is being added to each year. These books and bulletins are open to the students for reference study or for supplementary reading. The general library is also open to the students of the College.

The Agricultural Club, inaugurated in 1909, has already proved an important factor in student life. The objects of the club are manifold. The following are among the most important:

First, to promote interest in and enthusiasm for agriculture.

Second, through social intercourse, to unite in closer bonds of friendship and sympathy those who desire to have a part in the promotion of this great industry.

Third, to gain knowledge. Looking to this end the club will be addressed from time to time by practical and scientific agriculturists. Carefully prepared papers, essays, readings and orations will be presented by the members upon assigned or chosen subjects of general interest to the club. General discussions on current agricultural and humanitarian topics will be freely encouraged.

Fourth, training in presenting agricultural matter. At the present time such training is almost as important a factor in success as agricultural knowledge. Practice is obtained in parliamentary usage and in presiding over and conducting public societies. Members in turn are given a place on the program and they are encouraged to take part in the discussions and business that may come before the club.

Every student of the College of Agriculture should avail himself of the benefits and privileges offered by the club, and students of other Colleges in the University are cordially invited to make use of the means thus provided for increasing their knowledge of and sympathy with this important movement, the uplift of the agricultural industry—an industry which not only supplies mankind with food, but upon which nearly all other industries depend.

The officers of the Agricultural Club are as follows:

J. B. Rutland, *President.*
H. G. Clayton, *Vice-President.*
G. H. Wilson, *Secretary-Treasurer.*
J. T. Harris, *Sergeant-at-Arms.*
J. J. Vernon, *Honorary Critic.*

New students in the University who are at all interested in agriculture should make themselves known to the officers of the Agricultural Club and should early become allied with this movement, thereby securing the many benefits to be derived from membership therein.

The Short Course Agricultural Seminar.—The Short Course Agricultural Seminar was organized in 1910 to meet a special need of Short Course men. Special training is given in parliamentary usage, in speaking, and in taking part in and presiding over public gatherings.

Entrance Requirements.—The entrance requirements for admission to the College of Agriculture are:

English	3 units
Mathematics	3 units
History	2 units
Agriculture	1 unit
Electives	3 units
	12 units

For a detailed description of the units, see page 42.

While one unit of agriculture is required, owing to the fact that agriculture has been so recently included in the curriculum of the public high schools by legislative enactment, candidates will be allowed to take the agricultural work in which they are deficient during the Freshman year. Those who enter the preparatory year will pursue the required agricultural work in class.

Degrees.—The regular four-year course culminating in one of the five groups—Agronomy, Horticulture, Animal Husbandry, Agricultural-Chemical or Agricultural-Pedagogical—leads to the degree of Bachelor of Science in Agriculture. One year additional work as prescribed for graduate students leads to the degree of Master of Science in Agriculture.

Certificates.—Certificates will be granted to those who complete any of the Short Courses.

CURRICULUM

Leading to the Degree of Bachelor of Science in Agriculture.

Freshman Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
(First Semester.)			
Agronomy I	Soil Physics	4	102
Zootechny I	Types and Classes of Live Stock	3	105
Agricultural Engineering I	Farm Motors	1	103
Agricultural Seminar		1	..
Botany I	General Botany	3	68
English I*B*	Rhetoric, Composition	3	72
Mathematics I*a*	Solid Geometry	5	82
Military Science I	Drill Regulations	1	84
		21	
(Second Semester.)			
Agronomy II	Fertilizers	3	102
Horticulture I	Olericulture	3	104
Agricultural Engineering II	Farm Machinery	2	103
Agricultural Seminar		1	..
Botany I	General Botany	3	68
English I*B*	Rhetoric, Composition	3	72
Mathematics I*b*	Plane and Spherical Trigonometry	5	82
Military Science I	Firing Regulations	1	84
		21	

Sophomore Year.

(First Semester.)			
Agronomy III or Horticulture II	Crop Production / Greenhouse Construction and Management	3	102 / 104
Botany II	Plant Physiology	5	68
Zoology I	General Zoology	3	89
Chemistry I and II	General Inorganic Chemistry	5	69
English II*A*	Advanced College Rhetoric	3	72
Military Science II	Field Regulations	1	84
		20	
(Second Semester.)			
Bacteriology I	General Bacteriology	5	90
Zoology I	General Zoology	3	89
Zoology III	Entomology	3	89
Chemistry I and II	General Inorganic Chemistry	5	69
English II*A*	Advanced College Rhetoric	3	72
Military Science II	Manual of Guard Duty	1	84
		20	

Junior Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
Agronomy Group:			
(First Semester.)			
Agronomy IV	Rural Law and Farm Accounts	3	103
Chemistry III	Qualitative Analysis	3	70
Geology I	General Geology	5	75
Surveying I	Use of Compass, Level and Transit	2½	126
Elective		4½	
		18	
(Second Semester.)			
Horticulture III	Plant Breeding	3	104
Botany III	Histology	5	68
Chemistry III	Qualitative Analysis	3	70
Elective		7	
		18	
Horticultural Group:			
(First Semester.)			
Agronomy IV	Rural Law and Farm Accounts	3	103
Chemistry III	Qualitative Analysis	3	70
Geology I	General Geology	5	75
Surveying I	Use of Compass, Level and Transit	2½	126
Elective		4½	
		18	
(Second Semester.)			
Horticulture III	Plant Breeding	3	104
Botany III	Histology	5	68
Chemistry III	Qualitative Analysis	3	70
Elective		7	
		18	
Animal Husbandry Group:			
(First Semester.)			
Veterinary Elements		3	107
Chemistry III	Qualitative Analysis	3	70
Zoology II	Histology and Physiology	5	89
Surveying I	Use of Compass, Level and Transit	2½	126
Elective		4½	
		18	
(Second Semester.)			
Zootechny II	Breeds of Live Stock	3	105
Dairying I	Milk and Butter	3	106
Chemistry III	Qualitative Analysis	3	70
Zoology II	Histology and Physiology	5	89
Elective		4	
		18	

Junior Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
Agricultural-Chemical Group:			
(First Semester.)			
Chemistry IV	Qualitative Analysis	5	70
Geology I	General Geology	5	75
Elective		8	
		18	
(Second Semester.)			
Chemistry IV	Qualitative Analysis	5	70
Botany III	Histology	5	68
Elective		8	
		18	
Agricultural-Pedagogical Group:			
(First Semester.)			
Education I	Psychology	2	00
Education II*a*	Methods	3	00
History II	The United States since 1783	3	77
Latin A or	Cicero	5	00
German I or	Elementary Course		85
French I	Elementary Course		84
Elective		5	
		18	
(Second Semester.)			
Education I	Psychology	2	00
Education II*b*	School Management and Supervision	3	00
History II	The United States since 1783	3	77
Latin A or	Cicero	5	00
German I or	Elementary Course		85
French I	Elementary Course		84
Elective		5	
		18	

Note.—Subject to the approval of the Dean of the College and the President of the University, elective courses sufficient to make a total of not less than sixteen nor more than twenty hours per week in the junior and senior years shall be selected by each student from other groups, or from other Colleges upon approval by the Dean of that College.

Senior Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
Agronomy Group:			
(First Semester.)			
Agronomy V	Crop Judging	2	103
Botany IV	Plant Pathology	3	69
Chemistry VIII	Agricultural Chemistry	3	71
Economics I	Principles of Economics	3	78
Elective		7	
		18	
(Second Semester.)			
Agricultural Engineering III	Buildings, Roads, Irrigation, etc.	3	103
Horticulture V	Landscape Gardening	2	105
Botany V	Advanced Plant Pathology	5	69
Economics I	Principles of Economics	3	78
Elective		5	
		18	
Horticultural Group:			
(First Semester.)			
Horticulture IV	Pomology	3	104
Botany IV	Plant Pathology	3	69
Economics I	Principles of Economics	3	78
Elective		9	..
		18	
(Second Semester.)			
Horticulture V	Landscape Gardening	2	105
Horticulture VI	Forestry	3	105
Agricultural Engineering III	Buildings, Roads, Irrigation, etc.	3	103
Botany V	Advanced Plant Pathology	3	69
Economics I	Principles of Economics	3	78
Elective		4	
		18	
Animal Husbandry Group:			
(First Semester.)			
Zootechny III*a*	Animal Nutrition	3	105
Zootechny IV	Market Classes of Live Stock	2	106
Chemistry VIII	Agricultural Chemistry	3	71
Economics I	Principles of Economics	3	78
Elective		7	
		18	

Senior Year.

NAMES OF COURSES.	NATURE OF WORK.	HOURS PER WEEK.	DESCRIPTION, SEE PAGE.
(Second Semester.)			
Agricultural Engineering III	Buildings, Roads, Irrigation, etc	3	103
Zootechny III*b*	Feeds and Feeding	3	106
Zootechny V	Animal Breeding	3	106
Economics I	Principles of Economics	3	78
Elective		6	
		18	
Agricultural-Chemical Group:			
(First Semester.)			
Chemistry VII	Quantitative Analysis	7	71
Chemistry VIII	Agricultural Chemistry	3	71
Economics I	Principles of Economics	3	78
Elective		5	
		18	
(Second Semester.)			
Chemistry VII	Quantitative Analysis	7	71
Economics I	Principles of Economics	3	78
Elective		8	
		18	
Agricultural-Pedagogical Group:			
(First Semester.)			
Education IV	History of Education	3	156
Education V	Secondary Education	3	156
Education VI	Principles and Philosophy of Education	3	156
Latin I	Livy, Ovid, Virgil		65
or			
German II*a*	Intermediate Course	3	85
or			
French II	Intermediate Course		85
Elective		6	
		18	
(Second Semester.)			
Education IV	History of Education	3	156
Education V	Secondary Education	3	156
Education VI	Principles and Philosophy of Education	3	156
Latin I	Livy, Ovid, Virgil		65
or			
German II*a*	Intermediate Course	3	85
or			
French II	Intermediate Course		85
Elective		6	
		18	

DEPARTMENTS OF INSTRUCTION

AGRONOMY

PROFESSOR VERNON

MR. RUTLAND

Agronomy is the science and art of crop production. It includes—Soils: Classification, fertility, cultivation and improvement; Crops: Classification, production and improvement; Agricultural Engineering: Farm buildings, roads, fences, drainage and irrigation systems, tools and farm machinery; and Farm Management: The application of economic business methods to farm practices.

The laboratory work and field observations aim to fix the principles learned in the class room and give them practical application.

AGRONOMY A.—*Elementary Agronomy.*—Introductory principles underlying crop production and farm management. (*First semester, Sub-Freshman year, 3 hours.*)

AGRONOMY I.—*Soil Physics.*—The origin, formation, classification, moisture, ventilation and temperature of soils; and general methods of soil management and amelioration are among the subjects to be presented in this course. (*First semester, Freshman year, 5 hours.*)

AGRONOMY II.—*Fertilizers.*—The nature of plant food and its relation to the composition of soils, sources and composition of commercial fertilizers and principles governing their application, the making and economical use of farm manures, fertilizer requirements of various crops, and other related topics will form the subjects of discussion in this course. (*Second semester, Freshman year, 3 hours.*)

AGRONOMY III.—*Crop Production.*—The various grain and forage crops will be discussed with respect to their habits of growth, soil adaptations, fertilizer requirements, general methods of tillage and harvesting, and the most profitable forms in which to market them. Special attention will be given to corn, cotton, sugar cane and forage crops adapted to the South. (*First semester, Sophomore year, 3 hours.*)

AGRONOMY IV.—*Rural Law and Farm Accounts.*—Classification of property, boundaries, fences, stock laws, rents, contracts, deeds, mortgages, taxes, laws governing shipping, and other topics of special interest to farmers will be treated; and a system of farm bookkeeping will be worked out, using the transactions of the College farm as a basis for material for instruction. (*First semester, Junior year, 3 hours.*)

AGRONOMY V.—*Crop Judging.*—This course treats of classification and market grades of field crops, such as corn, cotton, velvet beans, etc.; shrinkage and other losses, and care of stored crops. The score card will be brought into use whenever possible. (*First semester, Senior year, 2 hours.*)

AGRICULTURAL ENGINEERING I.—*Farm Motors.*—The course covers a study of farm power, water power, horse powers, windmills, water, air and oil cooled internal-combustion engines—stationary, portable and tractors—using gas, gasoline, naptha, kerosene or crude oil as fuel; steam engines—stationary and traction, in their relation and application to farm work. (*First semester, Freshman year, 1 hour.*)

AGRICULTURAL ENGINEERING II.—*Farm Machinery.*—The course includes a study of the history of the development, details of construction, functions, methods of operation and care of the various forms of tillage, seeding and harvesting machinery and farm motors. Special attention is given to such machinery as plows, harrows, seeders and drills, corn and Irish potato planters, cultivators and weeders, mowers and rakes, potato diggers, spraying machines, and vehicles. (*Second semester, Freshman year, 2 hours.*)

AGRICULTURAL ENGINEERING III.—*Buildings, Fences, Roads, Drainage and Irrigation.*—In this course such topics as the construction of farm residences, barns and other farm buildings; the laying out of roads and fields; underdrainage; and irrigation plants will be considered and the students will be given practice in drawing plans and writing specifications. (*Second semester, Senior year, 3 hours.*)

HORTICULTURE

PROFESSOR FLOYD

Horticulture is applied to the cultivation of useful and ornamental garden plants and orchard fruits. These are the plants

most intimately associated with the private life of the home. In a sub-tropical climate unusual opportunities for practical effort and interesting study are presented. The wonderful variety of plants, the peculiar problems involved in their growth and development, and the accomplishments of those who have given time and labor to the solution of those problems, offer inviting fields for study and experimentation. Both the practical and the æsthetic tendencies may be cultivated.

The department with its orchard, garden, laboratory, and library offers fine opportunity for instruction, experiment and research.

HORTICULTURE A.—*Plant Propagation.*–Propagation by means of grafting, budding, cutting, layering, etc.; seed selection and preservation; making of hot beds and cold frames; seed testing, and related subjects will constitute the main topics for discussion, but some attention will also be given to elementary plant physiology. (*Second semester, Sub-Freshman year, 3 hours.*)

HORTICULTURE I.—*Olericulture.*–This course will be given with special reference to growing vegetables in Florida. The seasons in which the different vegetables may be grown, irrigation, cultural methods, fertilizing and marketing constitute the chief subjects for discussion. (*Second semester, Freshman year, 3 hours.*)

HORTICULTURE II.—*Greenhouse Construction and Management.* —In this course the principles underlying successful and economical Greenhouse Construction and Management will be thoroughly discussed, and the student will be given practical work in the greenhouse. (*First semester, Sophomore year, 3 hours.*)

HORTICULTURE III.—*Plant Breeding.*–The evolution of plants, cross pollination and hybridization, improvements by selection, Burbank's work and methods, breeding for special qualities, etc., are some of the topics that indicate the nature of the work. (*Second semester, Junior year, 3 hours.*)

HORTICULTURE IV.—*Pomology.*–The work in this course deals with the principles of fruit-growing. Particular attention is paid to those fruits that are of commercial importance in this State. The principles underlying the growing of citrus fruits, pine-

apples, peaches, etc., are thoroughly discussed. (*First semester, Senior year, 3 hours.*)

HORTICULTURE V.—*Landscape Gardening.*—The principles underlying the various styles of landscape gardening, the gardener's materials, improvement of farm homes and the making of more beautiful school grounds, are some of the topics presented. The wealth of materials to be found in Florida will make this subject especially interesting. (*Second semester, Senior year, 2 hours.*)

HORTICULTURE VI.—*Forestry.*—A course on the principles of forestry, the influence of forestry on climate, fruit-growing, etc., is given. Forest cropping, protection, the use of Florida woods, etc., are taken up. (*Second semester, Senior year, 3 hours.*)

ANIMAL HUSBANDRY

PROFESSOR MALTBY

Animal Husbandry includes Zootechny—classification, selecting and judging, breeding and improvement, feeding, care, and management of domesticated animals, and Dairying—care and management of the dairy herd and the production of sanitary dairy products.

Live stock is a most valuable adjunct in maintaining soil fertility, and in view of the fact that it will become an important factor in the general prosperity of the State the instruction is being broadened and the equipment strengthened.

ZOOTECHNY I.—*Types and Classes of Live Stock.*—The study of correct conformation as based upon utility purposes, giving special attention to the relationship existing between form and temperament, and production. The subject is largely covered by laboratory work in order to bring out more clearly the fundamental principles. (*First semester, Freshman year, 3 hours.*)

ZOOTECHNY II.—*Breeds of Live Stock and Score Card.*—The history and characteristics of the principal breeds of horses, cattle, sheep and swine will be the chief topics for classroom study, while practical lessons in stock judging will be given in the field with the animals belonging to the College farm, and visits will be made to practical stock farms to furnish further material for the work. (*Second semester, Junior year, 3 hours.*)

ZOOTECHNY III*a*.—*Animal Nutrition.*—The study of the rela-

tionship existing between food and animal life. Digestion, respiration and calorimetry; formation of animal tissues and the influence of protein, carbohydrates, fat, and ash upon the same; the source of muscular energy and the influence of different kinds of feed upon it; a study of the digestion tables and methods of compounding and balancing rations, are some of the subjects included in this course. (*First semester, Senior year, 3 hours.*)

ZOOTECHNY III*b*.—*Feeds and Feeding.*—The adaptation of the balanced ration to the various farm animals; the silo, soiling, forage, methods of feeding and handling successfully both young and old animals for the various farm purposes and for market; and a discussion of those feeds which will be the most economical to grow for feed. (*Second semester, Senior year, 3 hours.*)

Must be preceded by Zootechny III*a*.

ZOOTECHNY IV.—*Market Classes in Live Stock.*—A course covering the various methods of fitting and marketing live stock and live stock products, used in this and foreign countries. Considerable research work is required on the above as well as gathering statistics on the trade. The course will be supplemented by lectures and discussions on the Federal laws covering the importation and shipment of live stock in the United States. (*First semester, Senior year, 2 hours.*)

ZOOTECHNY V.—*Animal Breeding.*—The course covers the laws governing the breeding of animals and includes the principles of heredity; the laws of correlation, variation, fecundity, atavism, in-and-in breeding, parentage, form types and pedigrees; and the application of these principles and laws to the upbuilding and maintenance of high-class herds. Attention is given to methods of live stock improvement for Florida. (*Second semester, Senior year, 3 hours.*)

ZOOTECHNY VI.—*Poultry.*—The study of the breeds in connection with the score card. Poultry house construction, feeding for eggs and meat, incubation, brooding and care of the young stock, are the subjects studied by the students in this course. (*Elective Second semester, Junior and Senior years, 2 hours.*)

DAIRYING I.—*Milk and Butter.*—The production of sanitary milk and other dairy products is the main object of this course. The course includes a study of the properties of milk-secretion,

composition, food value, care, changes and adulteration, and methods of handling milk and its products in the home and well equipped creamery—receiving and weighing, sampling, testing, pasteurizing, separating, ripening cream, churning, packing and marketing. (*Second semester, Junior year, 3 hours.*)

DAIRYING II.—*Milk Hygiene.*—A study of the properties of milk and its various changes as affected by bacteria. The course is given for the purpose of leading up to the work of milk inspector. (*Elective First semester, 3 hours.*)

Must be preceded by Dairying I and Bacteriology I.

Veterinary Elements.—The course includes a study of the diseases most common among farm animals—causes, prevention, diagnosis and treatment. The class-work is supplemented by such practice as is necessary among the college herd. (*First semester, Junior year, 3 hours.*)

AGRICULTURE I.—*General Agriculture.*—This is a general course designed for teachers. Special attention is given to methods of introducing agriculture into the public schools of the State and rendering the instruction effective. A large amount of laboratory exercises, suited to the schools of the State, is offered in this course. (*Both semesters, required of Pedagogical students in the Sophomore year, 3 hours.*)

Special Elective Courses.—(At the option of the Professor in charge.)—Special courses will be given and credit allowed thereon when a sufficient number of students request it.

ANCIENT LANGUAGES

PROFESSOR ANDERSON

Latin I.—See page 65.

BOTANY

PROFESSOR FLOYD

Botany I.—See page 68.
Botany II.—See page 68.
Botany III.—See page 68.
Botany IV.—See page 69.
Botany V.—See page 69.

CHEMISTRY

PROFESSOR FLINT

Chemistry I *and* II.—See page 69.
Chemistry III *and* IV.—See page 70.
Chemistry VII.—See page 71.
Chemistry VIII.—See page 71.

CIVIL ENGINEERING

PROFESSOR SEELEY

Surveying I.—See page 126.

EDUCATION

PROFESSOR THACKSTON

Education I.—See page 155.
Education II.—See page 155.
Education III.—See page 155.
Education IV.—See page 156.
Education V.—See page 156.

ENGLISH

PROFESSOR FARR

English I.—See page 72.
English II.—See page 72.

GEOLOGY

PROFESSOR DAVIS

Geology I.—See page 75.

HISTORY AND ECONOMICS

PROFESSOR BERNARD

History II.—See page 77.
Economics I.—See page 78.

MATHEMATICS

PROFESSOR KEPPEL

Mathematics I.—See page 82.

MILITARY SCIENCE

MAJOR WALKER

Military Science I.—See page 84.
Military Science II.—See page 84.

MODERN LANGUAGES

PROFESSOR CROW

French I.—See page 84.
French II.—See page 85.
German I.—See page 85.
German II.—See page 85.

ZOOLOGY AND BACTERIOLOGY

PROFESSOR DAVIS

Zoology I.—See page 89.
Zoology II.—See page 89.
Bacteriology I.—See page 90.

SUB-FRESHMAN CLASS

Latin A.—See page 65.

SHORT COURSES IN AGRICULTURE

J. J. VERNON, M.S.A., DIRECTOR

Practically all of the agricultural colleges of the United States have found short courses necessary in order to reach a large class of young farmers and prospective farmers. It has seemed unwise to withhold from this deserving class of wealth producers the advantages of the equipment and instruction in agriculture generously provided by the Government and State appropriations. Men who have been fortunate enough to be able to complete a high school course are fitted to enter the regular college course. In the Short Courses the same advantages are thrown open to those less fortunate who can not enter the regular course, and the results obtained indicate the wisdom of the step taken. The value of the Short Courses, not only to the young men concerned, but to the whole people who are of necessity interested in the agricultural industry, has been satisfactorily demonstrated, and therefore, strong short courses are offered, designed to meet the several needs of the farmer.

In all the following courses two hours of laboratory work are reckoned as one hour in estimating the total number of hours in any course.

TWO-YEAR SHORT COURSE IN AGRICULTURE

For the convenience and accommodation of young farmers and young men preparing to farm who cannot meet the requirements for entrance to the Freshman year, or who may not wish to pursue a full college course and yet desire to obtain thorough training in practical and scientific agriculture, the following short course in agriculture is offered. The only requirements for admission are a good knowledge of the common school branches, good moral standing, and an earnest desire to profit by the studies pursued. The course leads to no degree and is not designed to supplant or in any way to be a substitute for the regular college course in agriculture as outlined above.

First Year.

NAMES OF COURSES.	NATURE OF WORK.	HOURS PER WEEK.
Required Studies:		
(First Semester.)		
Agronomy A	Elementary Agronomy	3
Agronomy I (Lab.)	Soil Physics	2
Horticulture II	Greenhouse Construction and Management	3
Zootechny I	Types and Classes of Live Stock	3
Agricultural Engineering I	Farm Motors	1
		12
(Second Semester.)		
Horticulture A	Plant Propagation	3
Horticulture I	Trucking	3
Zootechny VI	Poultry	2
Agricultural Engineering II	Farm Machinery	2
		10

Second Year.

(First Semester.)		
Agronomy I	Soil Physics	3
Horticulture IV or Zootechny III*a*	Pomology / Animal Nutrition	3
Botany I	General Botany	3
		9
(Second Semester.)		
Agronomy II	Fertilizers	3
Agricultural Engineering III	Buildings, Roads, Fences, Drainage and Irrigation	3
Botany I	General Botany	3
		9

Names of Courses.	Nature of Work.	Hours Per Week.
Elective Studies:		
(First Semester.)		
Agronomy III	Crop Production	3
Agronomy IV	Rural Law and Farm Accounts	3
Agronomy V	Crop Judging	2
Horticulture II	Greenhouse Construction and Management	3
Horticulture VI	Forestry	3
Zootechny IV	Market Classes of Live Stock	2
Veterinary Elements		3
Dairying II	Milk Hygiene	3
Botany IV	Plant Pathology	3
Physics A	General Elementary Physics	5
Zoology I	General Zoology	3
Chemistry I	General Inorganic Chemistry	3
Chemistry II	Laboratory	2
Chemistry VIII	Agricultural Chemistry	3
Geology I	General Geology	5
Economics I	Principles of Economics	3
English *A*	Elementary Rhetoric, Classics	4
English I	American Literature	3
Mathematics *A*1	Plane Geometry	4
Mathematics *A*2	Algebra from Quadratics	4
Mathematics I*a*	Solid Geometry	5
Surveying I	Use of compass, level and transit	2½
History *A*	English History	3
History II	The United States since 1873	3
(Second Semester.)		
Horticulture III	Plant Breeding	3
Horticulture V	Landscape Gardening	2
Zootechny II	Breeds of Live Stock and Score Card	3
Zootechny V	Animal Breeding	3
Dairying I	Milk and Butter	3
Botany II	Plant Physiology	3
Botany III	Histology	5
Botany V	Advanced Plant Pathology	3
Bacteriology I	General Bacteriology	5
Physics *A*	General Elementary Physics	5
Zoology I	General Zoology	3
Zoology III	Entomology	3
Chemistry I	General Inorganic Chemistry	3
Chemistry II	Laboratory	2
Economics I	Principles of Economics	3
English *A*	Elementary Rhetoric, Classics	4
English I	English Literature	3
Mathematics *A*1	Plane Geometry	4
Mathematics *A*2	Algebra from Quadratics	4
Mathematics I*b*	Plane and Spherical Trigonometry	5
History *A*	English History	3
History II	The United States since 1783	3

Note.—Students shall select from the elective studies a sufficient number to make not less than sixteen nor more than twenty hours per week.

ONE-YEAR SHORT COURSE IN AGRICULTURE

There are many persons so situated that they can not spend two years at school. The One-year Course will meet the needs of those who can spend only one year in special preparation. The requirements for admission to this course are the same as for the Two-year Short Course. (See page 110.)

Names of Courses.	Nature of Work.	Hours Per Week.
(First Semester.)		
Agronomy *A*	Elementary Agronomy	3
Agronomy I	Soil Physics	5
Agronomy III	Crop Production	3
Agronomy IV	Rural Law and Farm Accounts	3
Agronomy V	Crop Judging	2
Horticulture II	Greenhouse Construction and Management	3
Horticulture IV	Pomology	3
Zootechny I	Types and Classes of Live Stock	3
Zootechny III*a*	Animal Nutrition	3
Zootechny IV	Market Classes of Live Stock	2
Dairying II	Milk Hygiene	3
Veterinary Elements		3
Agricultural Engineering I	Farm Motors	1
(Second Semester.)		
Agronomy II	Fertilizers	3
Horticulture *A*	Plant Propagation	3
Horticulture I	Trucking	3
Horticulture III	Plant Breeding	3
Horticulture V	Landscape Gardening	2
Zootechny II	Breeds of Live Stock and Score Card	3
Zootechny III*b*	Feeds and Feeding	3
Zootechny V	Animal Breeding	3
Dairying I	Milk and Butter	3
Agricultural Engineering II	Farm Machinery	2
Agricultural Engieering III	Buildings, Roads, Fences, Drainage and Irrigation	3

Note.—Students shall select from the studies offered a sufficient number to make not less than sixteen nor more than twenty hours per week.

FOUR-MONTH FARMERS' SHORT COURSES IN AGRICULTURE

These courses, one beginning September 18, 1912, and the other January 30, 1913, will appeal to practical farmers who wish to increase their productive power, to young men who expect

to become farmers, and to those who are turning from other lines of work in order to possess land and obtain the advantages of country life.

FOUR-MONTH SHORT COURSE IN AGRICULTURE

Beginning September 18, 1912.

Elementary Agriculture	3
Soil Physics	5
Crop Production	3
Rural Law and Farm Accounts	3
Crop Judging	2
Greenhouse Construction and Management	3
Citrus Culture	3
Types and Classes of Live Stock	3
Veterinary Elements	3
Animal Nutrition	3
Market Classes of Live Stock	2

NOTE.—Students shall select from the studies offered a sufficient number to make not less than sixteen nor more than twenty hours per week.

FOUR-MONTH SHORT COURSE IN AGRICULTURE

Beginning January 30, 1913.

Fertilizers	3
Farm Machinery	2
Buildings, Fences, Roads and Irrigation	3
Plant Propagation	3
Trucking	3
Plant Breeding	3
Landscape Gardening	2
Forestry	3
Breeds of Live Stock	3
Dairying	3
Poultry	2
Animal Breeding	3
Feeds and Feeding	3

NOTE.—Students shall select from the studies offered a sufficient number to make not less than sixteen nor more than twenty hours per week.

FARMERS' SHORT COURSE OF FOUR WEEKS IN AGRICULTURE

Beginning November 25, 1912, and ending December 21, 1912.

The Four-week Farmers' Short Course in Agriculture is offered to meet the needs of those who for any reason can not pursue a longer course. It is especially suited to two classes: First, busy farmers of all ages who, recognizing their need for

better preparation, earnestly desire more knowledge of scientific agriculture in order to render more effective the practical knowledge they have already gained; and second, ambitious young men who are compelled to drop out of school and yet desire to devote a short time to special preparation for their lifework upon the farm.

There are no age limits and no educational requirements for entrance to the Farmers' Short Course except ability to receive benefit therefrom and an earnest desire for improvement along agricultural lines.

The course will consist of textbook study, lectures, laboratory work and field observation and demonstration. Trips of inspection will be made to large truck and stock farms in the vicinity of the University, and successful farmers will be called before the classes occasionally for the purpose of explaining their methods The benefits of a thriving Agricultural Club will be open to all Short Course men.

The laboratory equipment, the thoroughbred stock and the farm used in the regular courses will be available for instruction in the Short Courses. The Agricultural Experiment Station, located at the University, will afford opportunity for observation and inquiry. Special care has been taken that the Farmers' Short Course should be arranged throughout to meet the needs and suit the conditions of the practical farmer.

The following subjects are included in the Farmers' Short Course in Agriculture:

Principles of Agriculture.
Soils.
Soil Laboratory.
Fertilizers.
  a. Chemical.
  b. Experimental.
  c. Practical.
Field Crops.
  a. General.
  b. Special.
  c. Experimental.
Crop Judging.
Agricultural Engineering.
  a. Farm Machinery.
  b. Farm Motors.
  c. Buildings, Fences and Roads.
  d. Drainage and Irrigation.
Plant Propagation.
Citrus Fruits and Citrus Culture.
Trucking.
  a. Crops.
  b. Marketing.
  c. Protection.
Types and Breeds of Live Stock.
Poultry Raising.
Stock Judging.
Animal Breeding.
Dairying.
  a. Home Dairy.
  b. Feeding, Care and Management of the Dairy Herd.
Injurious Insects.
Plant Diseases.
Farm Bacteriology.
Farm Chemistry.
Library Research.

The necessary expenses for the Farmers' Short Course are about as follows:

Board, one month, including room, heat and light	$15 00
Books, stationery, laundry and incidentals	10 00
Tuition free	
Total	$25 00

NOTE.—The rooms are supplied with necessary furniture, but each student is required to bring sufficient bedding with him for his own use.

COLLEGE OF ENGINEERING

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President of the University.

J. R. BENTON, B.S., PH.D.,
Dean of the College of Engineering,
Professor of Physics and Electrical Engineering.

MAJOR E. S. WALKER, U. S. A., Retired,
Professor of Military Science and Assistant Professor of Civil Engineering.

A. J. WIECHARDT, M.E., M.M.E.,
Professor of Mechanical Engineering.

W. L. SEELEY
Professor of Civil Engineering.

JAMES M. FARR, A.M., PH.D.,
Professor of English.

EDWARD R. FLINT, B.S., PH.D., M.D.,
Professor of Chemistry.

C. L. CROW, M.A., PH.D.,
Professor of Modern Languages.

H. G. KEPPEL, A.B., PH.D.,
Professor of Mathematics and Astronomy.

W. S. PERRY, A.B.,
Instructor in Physics and Electrical Engineering.

J. W. ZELLER, B.M.E.,
Instructor in Mechanical Engineering.

SPECIAL LECTURERS FOR 1911-1912

H. B. FOSTER,
Chief Engineer, Merrill-Stevens Company, Jacksonville.

H. J. LANGLOIS,
United States Office of Public Roads, Washington, D. C.

GENERAL STATEMENT

Aim and Scope.—It is the aim of the College of Engineering to furnish such training as will be useful to its graduates in the profession of engineering. The courses of instruction are similar to those offered in other American engineering schools of college grade; and the graduates are prepared to fill successfully such positions as are usually allotted to young engineers.

Scholastic training alone can not make a competent engineer, any more than it can make a competent physician or lawyer. It can, however, fit a man to enter the profession of engineering; and it is an important element in ultimate success in that profession.

The work of the College of Engineering is divided among courses of study of the following types: (1) courses in the sciences fundamental to the practice of engineering, of which mathematics, chemistry, and physics are the most important; (2) courses in various branches of engineering practice in which those sciences are applied, such as structural engineering, steam and gas engineering, or electrical engineering; (3) courses in practical work, such as mechanic arts, drafting or surveying; and (4) courses contributing primarily to general culture, such as those in English and in German.

Admission.—To gain admission to the Freshman class of the College of Engineering, a candidate must be prepared to offer 12 entrance units, of which 3 must be in English, 3 in Mathematics, 2 in History and the remaining 4 must be chosen from among the list of subjects given on page 45. These requirements are equivalent to the completion of the eleventh grade of the senior high schools, and are fully explained on pages 42 to 52.

Expenses.—See page 37.

Buildings and Equipment.—The principal building and headquarters of the College of Engineering is Engineering Hall. It is a three-story brick building, 122 feet by 73 feet, with a one-story wing for boilers and steam engine laboratory. It provides classrooms and drafting-rooms for all of the engineering departments of instruction, and various special laboratories, such as the hy-

draulic laboratory, dynamo laboratory, steam engine laboratory, and laboratory for testing materials.

For the shop work, a separate building is used. It is more fully described on page 25.

A part of the work of the College of Engineering coincides with that of the other colleges of the University, and for all such work the same classrooms and laboratories are utilized.

Suitable equipment is available for the courses requiring laboratory work, shop work, or field work in surveying, and is described more fully under the departments of instruction (pages 123 to 129.)

Curricula and Degrees.—Three curricula, each requiring four years, are offered: one in Civil Engineering, one in Electrical Engineering, and one in Mechanical Engineering. They lead to the degrees of Bachelor of Science in Civil Engineering (B. S. C. E.), Bachelor of Science in Electrical Engineering (B. S. E. E.), and Bachelor of Science in Mechanical Engineering (B. S. M. E.), respectively.

The Freshman and Sophomore years are the same for all engineering students; the Junior year is the same for electrical and mechanical engineering students. The work in Chemistry, English, German, Mathematics and Physics is the same for all engineering students throughout the curriculum, and in part coincides with that required of students in the College of Arts and Sciences. All engineering students take some work in drafting, shop practice, and surveying; but the time devoted to these subjects varies in the different curricula.

CURRICULUM

Leading to the Degree of Bachelor of Science in Civil Engineering.

Freshman Year.

NAMES OF COURSES.	NATURE OF WORK.	*HOURS PER WEEK.	DESCRIPTION, SEE PAGE.
Descriptive Geometry		2	130
Drawing I*a*	Elementary Mechanical Drawing (4 actual hours)	2	131
Drawing I*b*	Descriptive Geometry and Free Hand Drawing (2 actual hours)	1	131
English I*B*	Composition and Rhetoric	3	72
German I	Elementary German	5	85
Mathematics I*a* and I*b*	Solid Geometry, Plane and Spherical Trigonometry	5	82
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1	84
Shop I	Carpentry, Wood Turning, Wood Carving, Cabinet Work (6 actual hours)	3	132
		22	

Sophomore Year.

Chemistry I	Inorganic Chemistry	3	69
Drawing II	Mechanical Drawing to Scale (3 actual hours)	1½	131
English II*B*	Exposition	1	72
Mathematics II*a*	Higher Algebra, Analytic Geometry	3	82
Mathematics II*b*	Calculus	3	82
Military Science II	Field Service Regulations, Manual of Guard Duty	1	84
Physics I	Mechanics, Heat, Acoustics, Optics	3	88
Physics II	Laboratory Work to Accompany Physics I (4 actual hours)	2	88
Shop II	Forge and Foundry (3 actual hours)	1½	132
Surveying I	Use of Compass, Level and Transit; Map Drawing (5 actual hours)	2½	126
		21½	

*In counting hours, each actual hour of laboratory, shop, or field work is counted as one-half hour.

Junior Year.

NAMES OF COURSES.	NATURE OF WORK.	*HOURS PER WEEK.	DESCRIPTION, SEE PAGE.
Hydraulics I and II		3	127
Mathematics III*a*	Calculus	3	83
Mathematics III*b*	Analytic Geometry, Calculus	2	83
Mechanics I	Analytic Mechanics, Strength of Materials	4	129
Physics III	Electricity and Magnetism (classroom and laboratory work)	3	88
Railroad Engineering (second semester)		6	127
Surveying II (first semester)	Topographic, Geodetic and Hydrographic Surveying (6 actual hours)		127
		21	

Senior Year.

Engineering Jurisprudence	Contracts and Specifications	1	128
Mechanics II	Mechanism, Analytic Mechanics	5	130
Municipal Engineering (first semester)	Roads and Pavements, Water Supply, Disposal of Wastes	6	127
Thesis (second semester)			128
Structural Engineering		5	127
Elective		2	128
		19	

*In counting hours, each actual hour of laboratory, shop, or field work is counted as one-half hour.

CURRICULUM

Leading to the Degree of Bachelor of Science in Electrical Engineering.

Freshman Year.

Names of Courses.	Nature of Work.	*Hours Per Week.	Description, See Page.
Descriptive Geometry		2	130
Drawing I*a*	Elementary Mechanical Drawing (4 actual hours)	2	131
Drawing I*b*	Descriptive Geometry and Free Hand Drawing (2 actual hours)	1	131
English I*B*	Composition and Rhetoric	3	72
German I	Elementary German	5	85
Mathematics I*a* and I*b*	Solid Geometry, Plane and Spherical Trigonometry	5	82
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1	84
Shop I	Carpentry, Wood Turning, Wood Carving, Cabinet Work (6 actual hours)	3	132
		22	

Sophomore Year.

Chemistry I	Inorganic Chemistry	3	69
Drawing II	Mechanical Drawing to Scale (3 actual hours)	1½	131
English II*B*	Exposition	1	72
Mathematics II*a*	Higher Algebra, Analytic Geometry	3	82
Mathematics II*b*	Calculus	3	82
Military Science II	Field Service Regulations, Manual of Guard Duty	1	84
Physics I	Mechanics, Heat, Acoustics, Optics	3	88
Physics II	Laboratory Work to Accompany Physics I (4 actual hours)	2	88
Shop II	Forge and Foundry (3 actual hours)	1½	132
Surveying I	Use of Compass, Level and Transit; Map Drawing	2½	126
		21½	

*In counting hours, each actual hour of laboratory, shop, or field work is counted as one-half hour.

Junior Year.

Names of Courses.	Nature of Work.	*Hours Per Week.	Description, See Page.
Drawing III	Machine Design (6 actual hours)	3	131
Electrical Engineering I (second semester)	Electrical Machinery, Dynamo Laboratory	3	128
Hydraulics I (first semester)			127
Mathematics III*a*	Calculus	3	83
Mathematics III*b*	Analytic Geometry, Calculus	2	83
Mechanics I	Analytic Mechanics, Strength of Materials	4	129
Physics III	Electricity and Magnetism (classroom and laboratory work)	3	88
Shop III	Machine Shop (6 actual hours)	3	132
		21	

Senior Year.

Electrical Engineering II	Electrical Machinery, Transmission, and Illumination; Dynamo Laboratory	7	128
Electrical Engineering III	Telegraph and Telephone	2	129
Engineering Jurisprudence	Contracts and Specifications	1	128
Mechanical Engineering I	Steam Engines (classroom and laboratory work)	4	130
Mechanics II	Mechanism, Analytic Mechanics	5	130
		19	

*In counting hours, each actual hour of laboratory, shop, or field work is counted as one-half hour.

CURRICULUM

Leading to the Degree of Bachelor of Science in Mechanical Engineering.

Freshman Year.

Names of Courses.	Nature of Work.	*Hours Per Week.	Description, See Page.
Descriptive Geometry		2	130
Drawing I*a*	Elementary Mechanical Drawing (4 actual hours)	2	131
Drawing I*b*	Descriptive Geometry and Free Hand Drawing (2 actual hours)	1	131
English I*B*	Composition and Rhetoric	3	72
German I	Elementary German	5	85
Mathematics I*a* and I*b*	Solid Geometry, Plane and Spherical Trigonometry	5	82
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1	84
Shop I	Carpentry, Wood Turning, Wood Carving, Cabinet Work (6 actual hours)	3	132
		22	

Sophomore Year.

Chemistry I	Inorganic Chemistry	3	69
Drawing II	Mechanical Drawing to Scale (3 actual hours)	1½	131
English II*B*	Exposition	1	72
Mathematics II*a*	Higher Algebra, Analytic Geometry	3	82
Mathematics II*b*	Calculus	3	82
Military Science II	Field Service Regulations, Manual of Guard Duty	1	84
Physics I	Mechanics, Heat, Acoustics, Optics	3	88
Physics II	Laboratory Work to Accompany Physics I (4 actual hours)	2	88
Shop II	Forge and Foundry (3 actual hours)	1½	132
Surveying I	Use of Compass, Level and Transit; Map Drawing (5 actual hours)	2½	126
		21½	

*In counting hours, each actual hour of laboratory, shop, or field work is counted as one-half hour.

Junior Year.

NAMES OF COURSES.	NATURE OF WORK.	*HOURS PER WEEK.	DESCRIPTION, SEE PAGE.
Drawing III	Machine Design (6 actual hours)	3	131
Electrical Engineering I (second semester)	Electrical Machinery, Dynamo Laboratory	3	128
Hydraulics I (first semester)			127
Mathematics III*a*	Calculus	3	83
Mathematics III*b*	Analytic Geometry, Calculus	2	83
Mechanics I	Analytic Mechanics, Strength of Materials	4	129
Physics III	Electricity and Magnetism (classroom and laboratory work)	3	88
Shop III	Machine Shop (6 actual hours)	3	132
		21	

Senior Year.

Drawing IV	Machine Design, Structural Drafting (6 actual hours)	3	131
Electrical Engineering IV	Dynamo Laboratory (2 actual hours)	1	129
Engineering Jurisprudence	Contracts and Specifications	1	128
Mechanical Engineering I	Steam Engines (classroom and laboratory work)	4	130
Mechanical Engineering II	Gas Engines, Pumps, Boilers	2	130
Mechanics II	Mechanism, Analytic Mechanics	5	130
Shop IV	Machine Shop (6 actual hours)	3	132
		19	

*In counting hours, each actual hour of laboratory, shop, or field work is counted as one-half hour.

DEPARTMENTS OF INSTRUCTION

CIVIL ENGINEERING

PROFESSOR SEELEY
MAJOR WALKER

Equipment.—The equipment of this Department ranks with that of the leading Southern unviersities and comprises a general outfit of standard makes of engineering instruments, and a complete camp equipment for field parties; a testing laboratory with cement testing machine and a 50,000-pound Riehlé Brothers standard testing machine with all necessary accessories; well-equipped drafting-room; excellent library facilities; also special devices and instruments for independent investigation in engineering lines.

Methods.—Instruction in civil engineering is given by (1) recitations, based on assigned lessons in standard text-books; (2) lectures, designed to supplement text-book instruction; (3) laboratory work, to give the students familiarity with engineering instruments, and with the making of engineering measurements and tests; (4) field work, in which the student, under the guidance of the instructor, carries our work of the same nature as in actual engineering practice; and (5) drafting-room practice, in which the student is instructed in reading and making of such plans, maps, and the like, as ordinarily come within the scope of the civil engineer's work.

Subjects Taught.—On pages 123 and 124 of this catalogue will be found a condensed statement of the work required for graduation with degree of Bachelor of Science in Civil Engineering. Such of this work as is taught by the instructors of this department is more fully described below.

SURVEYING I.—Class room and field work is given in chain surveying, use of compass and transit, computation of areas, use of level, differential and profile leveling, theory and use of surveying instruments, land surveying, use of plane table, topographic surveying. (*Required of Sophomores in the Civil, Electrical and Mechanical Engineering courses, also of Juniors in*

Agriculture; both semesters; 1 recitation and 3 hours of field work or drafting per week.)

SURVEYING II.—Hydrographic surveying; city surveying; measurement of volumes; geodetic surveying; determination of latitude, longitude, and time; cartography. (*Required of Juniors in the Civil Engineering course; First semester only; 3 recitations and 2 field exercises of 3 hours each per week.*)

Railroad Engineering.—Railway location; computation of earthwork; subgrade and track structures; economics of railroad operation. The field work consists of the reconnaissance, preliminary, and location survey, followed by laying out curves and estimating earthwork, track work, and track structures, which would be necessary to build a railroad to connect two points in the neighborhood of the university. The principles underlying the field work, and the results obtained, are discussed in the class room. (*Required of Juniors in the Civil Engineering course; Second semester only; 3 recitations and 2 field or drafting exercises of 3 hours each per week.*)

HYDRAULICS I.—A short general course on the principles of hydraulics with special reference to their applications in engineering. Stability of dams; strength of pipes and tanks; stability of ships; flow in pipes and in open channels; impulse and resistance of fluids; measurement of pressure, velocity and discharge. (*Required of Juniors in all Engineering courses; First semester only; 2 lectures and 1 laboratory exercise of 2 hours per week.*)

HYDRAULICS II.—A course in continuation of Hydraulics I, with special reference to applications in civil engineering. Improvement of rivers and harbors; canals; problems of flood control; water-power development. (*Required of Juniors in the Civil Engineering course; Second semester only; 2 lectures and 1 laboratory exercise of 2 hours per week.*)

Municipal Engineering.—Roads and pavements; testing of road material; sewerage and sewage disposal; water supply engineering, including computation of rainfall and run-off, methods of collection, storage and distribution. (*Required of Seniors in the Civil Engineering course; First semester only; 5 recitations and 1 laboratory exercise of 2 hours per week.*)

Structural Engineering.—Structural details; bridges; roof

trusses; plate girders; masonry structures; arches and stereotomy; dams; foundations; study of the methods of production and of the properties of all the more important materials of construction. (*Required of Seniors in the Civil Engineering course; both semesters; 3 recitations and 2 drafting or laboratory exercises of 2 hours each per week.*)

Engineering Jurisprudence.—Contracts and specifications and forms of proposals; laws governing partnerships and corporations; deeds, mortgages, and abstracts of title; common carriers; master and servant; bonds and insurance. (*Required of Seniors in all Engineering courses; both semesters; 1 hour per week.*)

Elective.—Opportunity is given for students to specialize to a limited extent along some particular line of engineering work. If no choice is made by them a definite subject will be assigned. (*Required of Seniors; both semesters; 2 hours per week.*)

Thesis.—Each student is required to make a complete design of some engineering work, with specifications and estimate of cost. (*Senior year, second semester; 6 hours per week.*)

ELECTRICAL ENGINEERING

PROFESSOR BENTON
MR. PERRY

Instruction in this department is planned so as to lay equal stress on classroom work, of theoretical nature, and on laboratory work, of practical nature. For the latter, a well-equipped dynamo laboratory is provided, which is fully described on page 29.

The following courses are given:

ELECTRICAL ENGINEERING I.—A short elementary course in general Electrical Engineering. Text-book to be used in 1912-13: Norris's Introduction to the Study of Electrical Engineering. (*Required of Juniors in the Electrical Engineering and Mechanical Engineering courses; second semester only; 2 recitations and 1 laboratory exercise of 2 hours per week.*)

ELECTRICAL ENGINEERING II.—Dynamo-electric machinery, alternating currents, electrical transmission of power, and electric lighting. Text-books to be used in 1912-13: Franklin and Esty's Elements of Electrical Engineering; Franklin and Esty's Dyna-

mo Laboratory Manual. (*Required of Seniors in the Electrical Engineering course; both semesters; 4 recitations and 3 laboratory exercises of 2 hours each per week.*)

ELECTRICAL ENGINEERING III.—Telegraph and telephone engineering. Text-books to be used in 1912-13: Houston and Kennelly's The Electric Telegraph; Houston and Kennelly's The Electric Telephone. (*Required of Seniors in the Electrical Engineering course; both semesters; 1 recitation and 1 laboratory exercise of 2 hours per week.*)

ELECTRICAL ENGINEERING IV.—A brief laboratory course on electrical machinery. (*Required of Seniors in the Mechanical Engineering course; both semesters; 1 laboratory exercise of 2 hours per week.*)

MECHANICAL ENGINEERING

PROFESSOR WIECHARDT
MR. ZELLER

The instruction in this department follows theoretical and practical lines.

In the drafting-room and various shops, the best practical methods are always kept in mind. System, accuracy and neatness are insisted upon everywhere. Engineering magazines and catalogues of the best machinery are accessible to the students and they are encouraged to read them.

While acquainting the student with practical methods, the aim is to produce engineers of independent thought and original power. In every possible way the student is encouraged to think for himself—to make improvements where improvements are possible, and thus to keep abreast with the progress of the times.

The following courses are offered:

MECHANICS Ia.—*A course in Analytic and Applied Mechanics.*—This comprises a study of the laws of force, friction, equilibrium of fluid pressure, inertia, centrifugal force, kinetic and potential energy, etc. Problems are also assigned, illustrating the practical application of these laws to cranes, derricks, pumps, boilers, engines, dynamos and other machinery. (*Required of all Engineering students; first semester; Junior year, 4 hours.*)

MECHANICS Ib.—*A course in the Strength of Materials used in the Construction of Machinery and Engineering Structures.*—This comprises an investigation of the strength of machines, boilers,

and engineering structures; an analysis of the stresses in bridges, roof trusses, and machinery; and a study of the mechanical properties of iron, steel, timber, cement, and other materials. The text is supplemented by laboratory tests on specimens of the various materials. (*Required of all Engineering students; second semester; Junior year, 4 hours.*)

MECHANICS II*a*.—*A course in Mechanism, or the Kinematics of Machinery.*—This includes an investigation of link work, construction of gears and cams, belt and pulley drive, trains of mechanism, the velocity ratio and directional relation of the moving parts of various machines, etc. The text is supplemented by drawing exercises in the construction of gear teeth, cams, and motion diagrams. (*Required of all Engineering students; first semester; Senior year, 5 hours.*)

MECHANICS II*b*.—*A course in Analytic and Applied Mechanics.* —A continuation of Mechanics Ia. (*Required of all Engineering students; second semester; Senior year, 5 hours.*),

MECHANICAL ENGINEERING I.—*A course on the Steam Engine.* —This includes a study of the steam engine and the laws of thermodynamics; the indicator card; and the losses involved in the conversion of one form of energy into another. (*Required of Mechanical and Electrical Engineering students; both semesters; Senior year; 3 hours of class-work and 2 actual hours of laboratory or other assigned work weekly.*)

MECHANICAL ENGINEERING II.—*A course on Boilers, Gas Engines and Turbines.*—This comprises classroom work and a large number of experiments, such as taking indicator cards from a steam engine and determining its indicated horse power; finding the developed horse power by the Prony brake; determining the quality of steam by the throttling and separating calorimeters, and calibrating a steam gauge. (*Required of Mechanical Engineering students; both semesters; Senior year; 1 hour class and 2 actual hours of laboratory work per week.*)

DESCRIPTIVE GEOMETRY.—*A course in Projections.*—This includes the methods of representing points, lines, surfaces and solids in space by their projections; their intersections with each other and the careful solution of many original problems on the drawing board. (*Required of all Engineering students; both semesters; Freshman class, 2 hours.*)

DRAWING Ia.—*A course in Elementary Mcehanical Drawing.*—It comprises the use of the ordinary drawing instruments, the solution of geometrical problems, perspective drawing, isometric drawing, lettering, and some mechanical drawing from machine parts. (*Required of all Engineering students; both semesters; Freshman class, 4 actual hours weekly.*)

DRAWING Ib.—*A Companion course to Descriptive Geometry.*—It includes free-hand drawing and a further drill in making neat, accurate drawings, mechanically. The latter deals exclusively with the solution of numerous problems of the intersection of lines, planes and solids, and is taught with especial reference to developing originality in thinking and reasoning. (*Required of all Engineering students; both semesters; Freshman class, 2 actual hours weekly.*)

DRAWING II.—*A course in Machine Drawing.*—The students are required to make true working drawings, showing all the necessary dimensions and the delineation of the parts to a proper scale. They are given a set of detailed drawings from which to make an assembly drawing, or vice versa. A number of tracings and blueprints are also required. (*Required of all Engineering students; both semesters; Sophomore Class, 3 actual hours, counting as 1½ nominal hours.*)

DRAWING III.—*A course in Elementary Machine Design.*—This includes the design and proportioning of such machine parts as bolts, riveted joints, keys and gibs, toothed gearing, belt transmissions, shafts, journals, bearings and rod joints. (*Required of the Mechanical and Electrical Engineering students; both semesters; Junior year, 6 actual hours, counting as 3 nominal hours.*)

DRAWING IV.—*A course in Machine Design.*—This comprises the design of machines or the parts of machines to perform certain functions. From a set of specifications and a manufacturer's catalogue of machines, plans must be drawn up for the installation of such machines. A certain amount of structural drawing, relative to power plant installations, is also taken up. (*Required of Mechanical Engineering students; both semesters; Senior year, 6 actual hours counting as 3 nominal hours.*)

SHOP PRACTICE

An all-important feature in engineering is the shop work. The student must not only know *about* things, but also how to *do*

them. His value to the world lies in the fact that he can take off his coat and do things. Such a man who knows the why and wherefore, and then can *do*, is the man the industrial world needs. The work is not merely manual training, but includes the actual making of tools and machinery of various designs. System, accuracy and neatness are insisted upon. The shops are furnished with electrical power, so that any of the machinery is ready for instant use.

SHOP I*a*.—*A course in Wood Work.*—First is given an elementary course in laying out work, and in the use of the ordinary hand tools, such as saws, chisels and planes. The student is next taught the use of the turning lathe, by himself turning a series of patterns; then he is taught the care and use of woodworking machinery, such as the rip-saw, cut-off saw, band-saw, and planer. (*Required of all Engineering students; first semester; Freshman year, 6 actual hours counting as 3 nominal hours.*)

SHOP I*b*.—*A course in Elementary Wood Carving and Furniture Construction.*—Herein is applied the skill, knowledge, and experience obtained in the first semester's work, and each student will be required to design and construct a piece of furniture, or other approved article involving carving, turning or jointry as a passing piece. (*Required of all Engineering students; second semester; Freshman class, 6 actual hours weekly.*)

SHOP II.—*A course in Forge Shop.*—Practice work is first given so as to develop proficiency in the use of the hammer. The student then makes articles of intrinsic value, such as foundry tools, hammers, cold chisels, lathe tools, turning chisels, drawknives and screw-drivers. He acquires skill in forging, welding, dressing, tempering and annealing. Foundry practice will be given in the second semester, by text-book, or lectures. (*Required of all Engineering students; Sophomore year, 3 actual hours counting as 1½ nominal hours.*)

SHOP III.—*A course in Machine Shop.*—The student is thoroughly drilled in the practical. Simple tasks in turning, boring, grinding, planing and milling are first given, followed by the more difficult duties. (*Required of Mechanical and Electrical Engineering students; Junior year, 6 actual hours, counting as 3 nominal hours.*)

SHOP IV.—*A course in Machine Shop.*—This is a continua-

tion of the shop work of the previous year. It consists of the more intricate and difficult tasks. All of this work is on actual machinery or parts thereof, and is of intrinsic value. (*Required of Mechanical Engineering students: Senior year, 6 actual hours counting as 3 nominal hours.*)

CHEMISTRY

PROFESSOR FLINT

Chemistry I.—See page 69.

ENGLISH

PROFESSOR FARR

English I*b*.—See page 72.
English II*b*.—See page 72.

MATHEMATICS

PROFESSOR KEPPEL

Mathematics I*a*.—See page 82.
Mathematics I*b*.—See page 82.
Mathematics II*a*.—See page 82.
Mathematics II*b*.—See page 82.
Mathematics III*a*.—See page 83.
Mathematics III*b*.—See page 83.

MILITARY SCIENCE AND TACTICS

MAJOR WALKER

Military Science I.—See page 84.
Military Science II.—See page 84.

MODERN LANGUAGES

PROFESSOR CROW

German I.—See page 85.

PHYSICS

PROFESSOR BENTON
MR. PERRY

Physics I.—See page 88.
Physics II.—See page 88.
Physics III.—See page 88.

SHORT COURSE IN MECHANIC ARTS

A. I. WIECHARDT, M.E., M.M.E., DIRECTOR

This course is designed for students who desire to attain proficiency in drafting, machine design, and shop practice, without pursuing a regular course in engineering. It does not lead to any degree. The studies shown in the following table are required:

First Year.

Names of Courses.	Nature of Work.	*Hours Per Week.	Description, See Page.
Drawing I*a*	Mechanical Drawing	2	131
Drawing II	Mechanical Drawing to Scale (3 actual hours)	3	131
English I*B*	Composition and Rhetoric	3	72
Mathematics I*a* and I*b*	Solid Geometry, Plane and Spherical Trigonometry	5	82
Military Science I	Infantry Drill Regulations, Small Arms Firing Regulations	1	84
Shop Practice	16 actual hours	8	131
		22	

Second Year.

Chemistry I	Inorganic Chemistry	3	69
Drawing III	Mechanical Motion and Machine Design (8 actual hours)	4	131
Mathematics II*a*	Higher Algebra, Analytic Geometry	3	82
Military Science II	Field Service Regulations, Manual of Guard Duty	1	84
Physics I	Mechanics, Heat, Acoustics, Optics	3	88
Physics II	Laboratory Work to Accompany Physics I (4 actual hours)	2	88
Shop Practice	12 actual hours	6	131
		23	

*In counting hours, each actual hour of laboratory, shop, or field work is counted as one-half hour.

COLLEGE OF LAW

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President of the University.

ALBERT J. FARRAH, A.M., LL.B.,
Dean and Professor of Law.

HARRY R. TRUSLER, A.M., LL.B.,
Professor of Law.

EDMUND C. DICKINSON, A.B., J.D.,
Professor of Law.

SPECIAL LECTURERS

1911-1912

CHIEF JUSTICE JAMES B. WHITFIELD,
JUSTICE R. F. TAYLOR,
JUSTICE W. A. HOCKER,
JUSTICE R. S. COCKRELL,
JUSTICE THOS. M. SHACKLEFORD, LL.D.,
All of the Supreme Court of Florida.

GENERAL STATEMENT

In 1891, the American Bar Association declared that in its opinion it was a part of the highest duty and interest of every civilized State to make provision, when necessary, for maintaining schools of law and the thorough legal education of all who are licensed to practice law. Feeling with its full force the soundness of this doctrine and being moved by a desire to discharge this duty on the part of the State, the State Board of Education and the Board of Control provided for the opening of the College of Law in the Univeristy of Florida in September, 1909. The advantages to accrue to the State from having a thorough and systematic course of instruction in the common law, with special consideration of the peculiarities and exceptions ap-

plicable in Florida, as a part of its educational system, are many and evident.

It was the purpose of the Board of Control to establish in the University of Florida a law school which, by the quality of its work and the character of its equipment, would merit and command the confidence and support of the bench and bar of the State and would draw within its walls the young men who will constitute the future bar of Florida. That the hopes of accomplishing these results were well founded and that gratifying progress towards these ends has been made, are shown by the number and character of those who have availed themselves of the advantages offered by the College of Law.

REQUIREMENTS FOR ADMISSION

Graduates and matriculates of colleges and universities and applicants who have completed a high school course of four years will, upon presentation of proper credentials to that effect, be admitted to the College of Law without examination as to preliminary education, as candidates for a degree. Other applicants, if condidates for a degree, must show by written examination, or by certificate of the superintendent or principal of the institution where they took the work, that they have satisfactorily completed two years of high school work, one-fourth of which must be work in English.

Notice is hereby given that with the opening of the session of 1913, the minimum requirements for admission to the College of Law will be increased to three years of high school work and in the fall of 1914 a high school course of four years will be required.

SPECIAL STUDENTS

Persons who are at least twenty-one years of age and are unable to comply with the above entrance requirements in their entirety, are allowed to become special students and pursue a selected course of study under the guidance of the Dean of the College of Law, but without the privilege of being enrolled as candidates for a degree. If the entrance conditions are removed not later than the opening of the first semester of the senior year, such students may, by special vote of the Faculty, become regular students and candidates for a degree.

ADVANCED STANDING

Attorneys at law who have been admitted to practice in the courts of this State and who comply with the above entrance requirements will be admitted to the senior class without examination.

No work in law done in other institutions will be accepted towards a degree, unless the applicant passes satisfactorily the examinations held in the subjects in the junior year of this department, or unless, by special vote of the Law Faculty, credit is given towards senior standing without examination for such work. In no case will credit be given in this way for work not done in residence at an approved law school.

COURSE OF INSTRUCTION

The course of instruction in the College of Law extends through two years of thirty-five weeks each, exclusive of vacations. The academic year is divided into two semesters, the first having eighteen weeks and the second seventeen.

The purpose of the College of Law is to educate its students by the study of jurisprudence and to acquaint them with the foundation principles of the common law at the same time. "The ability to think clearly, to reason closely, to appreciate distinctions quickly, to investigate thoroughly, to generalize accurately and to state his conclusions tersely, are prime requisites of the safe counselor." To secure for the student this power should be the constant effort of both student and faculty.

The method of instruction in the College of Law has been planned with these ends in view. This is largely by the use of text-books and selected cases. Each case is carefully studied by the student and in the class room he is required to analyze it, giving in his own language a clear and concise statement of the essential facts, the issues involved in the case, the law governing it and the reasoning of the court for the conclusion reached. This practice tends "to greater thoroughness in reading, greater care in reasoning and greater accuracy on the part of the student in the art of expression."

In connection with this case work, the student studies a well-written text-book on the subject under consideration which gives him a systematic summary of the same, more detailed informa-

tion concerning the application of the law in particular instances and an outline of the exceptions to and limitations upon the general principles considered in the cases.

Particular stress is placed on the statutory modifications of the common law in Florida. This is true in every subject in the curriculum, but it is especially emphasized in Pleading, Practice and Evidence, as the course of study is designed to thoroughly instruct the student in the peculiarities of substantive law and procedure in Florida so he will be able to enter upon the practice understandingly at once.

With these ends in view, the following course of study has been prepared:

FIRST YEAR

FIRST SEMESTER

CONTRACTS.—The nature of contract; offer and acceptance; form and consideration; capacity of parties; reality of consent; legality of object; operation of contract. Text-books: Clark on contracts and Huffcut and Woorduff's Cases on Contracts. (*3 hours a week. Dean Farrah.*)

ELEMENTARY LAW AND ELEMENTARY REAL PROPERTY.—Study of the elementary principles of the law as given in Books I, II and III of first edition of Robinson's Elementary Law and the first six chapters of Hopkins on Real Property. (*4 hours a week. Professor Dickinson.*)

CRIMINAL LAW.—Nature of crime; common law and statutory offenses; mental element in crime; insanity, intoxication, infancy, coercion, ignorance and mistake as bearing on exemption from responsibility; necessity; justification; agency; consent; condonation; contributory acts; principals; accessories; classification and study of particular crimes; former jeopardy; State and Federal jurisdiction. Text-books: Clark on Criminal Law and the Statutes of Florida. (*2 hours a week. Professor Trusler.*)

DOMESTIC RELATIONS.—This course considers thoroughly the law of husband and wife, parent and child, guardian and ward, infants, persons *non compos mentis* and aliens. Text-books: Long's Domestic Relations and the Statutes of Florida. (*2 hours a week. Professor Dickinson.*)

TORTS.—History and definitions; elements of torts; conflicting rights; mental anguish; parties to tort actions; remedies; damages; conflict of laws; method of discharge. Text-books: Burdick on Torts and Burdick's Cases on Torts. (*3 hours a week. Professor Trusler.*)

SECOND SEMESTER

CONTRACTS.—Interpretation of contract; discharge of contract; remedies for breach of contract. Text-books: Clark on Contracts, Huffcut and Woodruff's Cases on Contracts and the Statutes of Florida. (*3 hours a week. Dean Farrah.*)

SALES OF PERSONAL PROPERTY.—Sale and contract to sell; statute of frauds; illegality; conditions and warranties; delivery; acceptance and receipt; vendor's lien; stoppage in transitu; bills of lading; remedies of seller and buyer. Text-book: Tiffany on Sales. (*1 hour a week. Professor Trusler.*)

TORTS.—Exhaustive study of particular torts, including among others, false imprisonment; malicious prosecution and abuse of process; conspiracy; slander and libel; trespass; conversion; deceit; nuisance; negligence. Text-books: Burdick on Torts and Burdick's Cases on Torts. (*2 hours a week. Professor Trusler.*)

AGENCY.—Definitions and divisions; purposes for which the relation may be created and how; who may be principal or agent and evidence of the existence of the relation; ratification; delegation of authority by agent; termination, nature and extent, construction and execution of the authority; rights, duties and liabilities of agent, principal and third persons, the one to the other; particular classes of agents. Text-books: Mechem's Outlines of Agency and Mechem's Cases on Agency. (*2 hours a week. Professor Dickinson.*)

COMMON LAW PLEADING—Definition and classification of actions; proceedings in an action; analysis of the declaration; Stephen's Rules of Pleading. Text-books: Shipman's Common Law Pleading, the Statutes of Florida and the Supreme and Circuit Court Rules in Common Law Actions in Florida. (*3 hours a week. Dean Farrah.*)

EQUITY JURISPRUDENCE I.—History and definition; jurisdiction; general maxims; equitable estates, interests and primary

rights, including a study of trusts, the powers, duties and liabilities of trustees; mortgages; equitable liens; assignments. Text-books: Eaton on Equity and Selected Cases. (*2 hours a week. Professor Trusler.*)

BAILMENTS AND CARRIERS.—Nature and classification of bailments; rights and liabilities of the parties; innkeepers. Carriers of goods as to liability, discrimination, compensation, lien. Carriers of passengers as to duty to accept, accommodations, ticket, ejection, personal injuries. Action against carriers. Text-books: Goddard's Outlines of Bailments and Carriers and Goddard's Cases on Bailments and Carriers. (*2 hours a week. Professor Dickinson.*)

CRIMINAL PROCEDURE.—Jurisdiction and venue; arrests, searches and seizures; extradition; preliminary examination, bail and commitment; modes of accusation; the form of accusation; pleadings; proof; variance; verdict and judgment; proceedings after verdict; evidence; habeas corpus. Text-books: Beale's Criminal Procedure and the Statutes of Florida. (*1 hour a week. Professor Trusler.*)

BRIEF MAKING AND THE USE OF LAW BOOKS.—Where to find the law; how to use statutes and decisions; how to find the law. Text-book: Brief-Making and the Use of Law Books. (*1 hour a week. Professor Dickinson.*)

SECOND YEAR

FIRST SEMESTER

EQUITY PLEADING.—Nature and object of pleadings in equity; parties to a suit in equity; proceedings in a suit in equity; bills in equity; the disclaimer; demurrers and pleas in equity; replication and answers in an equitable suit. Text-books: Shipman's Equity Pleading, Rules of the Circuit Court in Chancery in Florida and the Statutes of Florida. (*2 hours a week. Professor Trusler.*)

EVIDENCE.—Rules as to admission and exclusion of evidence; judicial notice; parole evidence rule; burden of proof and the right to open and close; competency and examination of witnesses; production of documents, persons and things; direct examination, cross examination and redirect examination. Text-

books: Reynolds on Evidence, Wilgus's Cases on Evidence and the Statutes of Florida. (*3 hours a week. Dean Farrah.*)

Real Property II.—Text-books: Hopkins on Real Property Completed and the Statutes of Florida. (*2 hours a week. Professor Dickinson.*)

Negotiable Instruments.—Law Merchant; definitions and general doctrines; contract of the maker, acceptor, certifier; drawer; indorser, vendor, accommodater, assurer; proceedings before and after dishonor of negotiable instruments; absolute defenses; equities; payments; conflict of laws. Text-books: Bigelow on Bills, Notes and Cheques, the Negotiable Instrument Act of Florida, and selected cases. (*2 hours a week. Professor Dickinson.*)

Equity Jurisprudence II.—Accident, mistake and fraud; penalties and forfeitures; priorities and notice; bona fide purchasers; estoppel; election; satisfaction and performance; conversion; specific performance; injunction; reformation; cancellation; cloud on title; ancillary remedies. Text-books: Eaton on Equity and selected cases. (*2 hours a week. Professor Trusler.*)

Organization of and Proceedings in the Courts of Florida in Civil Actions.—

a. *In General.*—Disqualification, resignation, and removal of judges; judge's power in vacation; judge ad litem; parties to suits at law; locality and consolidation of actions; joinder of causes of actions; rule days; commencement of suits at common law; appearances, defaults and judgments upon default; pleadings at law; witnesses and evidence; jurors; judgments and executions; motion for new trial and in arrest of judgment; lis pendens; appellate proceedings at law and in probate matters; limitation of actions.

b. *Supreme Court.*—Statutory powers; members of the court; its terms, record, clerk, seal, decisions and reports.

c. *Circuit Court.*—Statutory powers and duties of judges; terms; records and dockets to be kept by the clerk; seal and records

d. *Circuit Court in Chancery.*—Its power in vacation; locality of action; process, its service and return; bill, demurrer, plea

and answer; practice and evidence; masters in chancery; decrees; rehearings and appeals; injunctions; ne exeat; divorce and alimony; partition of property; quieting titles; disability of minors and married women; liens.

e. *Statutory Jurisdiction of Circuit Court.*—Ejectment; re-establishing lost papers; adoption of children; eminent domain; court commissioners.

f. *County Court.*—Jurisdiction; terms; clerk; seal; records; appeals; rules of practice.

g. *County Judge's Court.*—General powers; bonds; clerk; seal; probate powers; as justice of the peace; forcible entry and detainer.

h. *Courts of Justices of the Peace.*—General provisions; jurisdiction; proceedings before, at and after trial; proceedings on appeal.

i. *Special Statutory Proceedings at Law.*—Attachment; garnishment; forcible entry and detainer; replevin; statutory liens; landlord and tenant.

j. *Extraordinary Legal Remedies.*—Habeas corpus; quo warranto; prohibition.

Text-books: Shipman's Common Law and Equity Pleading, General Statutes of Florida, decisions of Florida Supreme Court and the Common Law and Equity Rules of Practice of the Circuit and Supreme Courts of Florida. (*2 hours a week throughout the year. Dean Farrah.*)

The University Practice Courts.—One hour a week throughout the year.

Florida Constitutional Law.—Declaration of rights; legislative, executive, and judicial departments of government; suffrage and eligibility; census and apportionment; counties and cities; taxation and finance; homestead and exemptions; married women's property; education; public institutions; miscellaneous provisions. Text-books: The Constitution, Statutes and Judicial Decisions of Florida. (*1 hour a week. Professor Trusler.*)

Jurisdiction of the United States Courts.—Under the federal constitution; jurisdiction of different federal courts; ancillary and appellate jurisdiction; bankruptcy; admiralty

suits; federal questions: removal from state to federal courts, habeas corpus. Text-books: Thayer's Jurisdiction of the Federal Courts and selected cases. (*1 hour a week. Professor Trusler.*)

BRIEF MAKING AND THE USE OF LAW BOOKS.—The trial brief; the brief on appeal and its preparation. Text-book: Brief Making and the Use of Law Books. (*1 hour a week. Professor Dickinson.*)

BROOM'S LEGAL MAXIMS.—A reading course running throughout the year. (*Dean Farrah.*)

SECOND SEMESTER

UNITED STATES CONSTITUTIONAL LAW.—General principles; distribution of governmental powers; congress; the chief executive; the judiciary; police powers; eminent domain; checks and balances; guarantee of republican government, civil rights; political privileges; guarantees in criminal cases; impairment of contractual obligations; municipal corporations. Text-books: Cooley's Principles of Constitution Law and Cooley's Constitutional Limitations. (*2 hours a week. Professor Trusler.*)

WILLS.—Definition, nature and kinds of wills; a devisable estate; who may make a will; error, fraud, undue influence and mistake; who may take by will; formal requisites of wills; revocation; re-publication; by what law wills are governed; construction and effect of wills; lapse and substitution; rights and liabilities of devisees and legatees; descent and distribution. Text-books: Rood on Wills and the Statutes of Florida. (*2 hours a week. Professor Dickinson.*)

LEGAL ETHICS.—A consideration of the profession of the law in its relation to society, embracing the duties the lawyer owes to the commonwealth, to the court, to his professional brethren, and to his clients. Text-books: Sharswood's Legal Ethics and the Code of Ethics adopted by the American Bar Association. (*1 hour a week. Dean Farrah.*)

EXECUTORS AND ADMINISTRATORS.—When necessary; appointment and qualification; acceptance or renunciation; foreign and interstate adminsitration; powers, duties and liabilities of executors and administrators; inventory; assets of estate;

insolvent estates; distribution; accounting and allowances. Text-books: Croswell's Executors and Administrators and the Statutes of Florida. (*2 hours a week. Professor Trusler.*)

DAMAGES.—General principles; nominal, compensatory, exemplary, and liquidated damages; interest; value; pleading and practice; breach of contracts for sale of goods; actions against carriers; death by wrongful act; wrongs affecting real property; damages in tort action; breach of marriage promise. Text-book: Cases on Damages, selected from the Florida Reports. (*1 hour a week. Professor Trusler.*)

PARTNERSHIP.—Definitions and classifications; what constitutes a partnership; contract of partnership; firm name and good will; capital of firm; partnership property; rights and liabilities of partners among themselves and as to third persons; actions; dissolutions; limited partnerships. Text-book: Mechem's Cases on Partnership. (*1 hour a week. Professor Dickinson.*)

PRIVATE CORPORATIONS—Nature of a corporation; creation and citizenship of corporations; defectively organized corporations; corporation and its promoters; powers and liabilities of corporations; corporation and the State; dissolution of corporations; membership in corporations; management of corporations; creditors, their rights and remedies; foreign corporations. Text-books: Clark on Corporations and the Statutes of Florida. (*3 hours a week. Professor Dickinson.*)

The text-books announced are subject to change.

EXAMINATIONS

The last week of each semester is devoted to examinations covering the work of the semester. These examinations are in writing and are rigid and searching, but ARE NOT NECESSARILY FINAL. To be considered, prima facie, to have satisfactorily completed a subject, the student must obtain an average grade of at least 75 per cent, and an examination grade of at least 75 per cent During the last week of the second year, any candidate for a degree may be required to pass an examination in any or all subjects given in the course and attain a minimum average grade of 75 per cent in all subjects in order to be recommended for a degree.

THE UNIVERSITY PRACTICE COURTS

Thoroughly organized practice courts are regular features of the course of instruction in the second year Weekly sessions of the courts are held over which the Judge of the Practice Court presides The object of the course in the Practice Courts is to give the student practical instruction in pleading and practice at law and in equity and experience in the preparation and trial of cases The work is arranged as follows:

First—Cases arising upon prepared statements of fact are assigned to the second year students upon which they are to determine what proceedings to bring and how to bring them, issue, serve and return process, prepare the pleadings and bring the case to an issue on a question of law Each student must take part in one case at law and one in equity. The case is first heard on the sufficiency of the form and the structure of the pleadings and, when these are approved, the issue of law is argued and decided, the students acting as attorneys on each side drawing the order, judgment or decree they deem themselves entitled to.

Second.—In the second class of cases in the Practice Court, actual controversies are arranged and assigned for trial in the Circuit Court as issues of fact. After determining what action to bring, the students assigned to the case are required to issue the proper process and prepare and file the necessary pleadings, subpoena the witnesses, select the jury, examine and cross-examine the witnesses and argue the case to the jury. Each student is required to participate in the trial of one civil and one criminal case and must take part in carrying one chancery, one civil and one criminal case to the Supreme Court for review.

THE LAW LIBRARY

Law books are the working tools of the practicing lawyer. To teach the student how to use these tools, how to use the digest, encyclopedias and reports, is as much the work of the law school as to teach him the general principles of the law.

The College of Law was fortunate in being able to open its doors with a good working library and now has on its shelves the following books: Three sets of the Florida Supreme Court Reports, with digest; The Session Laws of Florida from 1822 to 1911, except from 1828 to 1834; McClellan's Digest and Duval's

Compilation of the Laws of Florida; Revised Statutes of 1892 and the General Statutes of 1906; The Northwestern, Southwestern, Northeastern, Southeastern, Atlantic, Pacific and Southern Reporters; The American Decisions, American Reports and American State Reports, with digests; The Lawyers Reports Annotated, with digests; The United States Supreme Court Reports, with digests; The New York Common Law and Chancery Reports, with digests; The New York Court of Appeals Reports, the Reports of the Supreme Courts of Michigan and Massachusetts and the New Jersey Equity Reports to the Reporters; The Reprint of the English Reports, the Encyclopedia of Law and Procedure and more than two hundred of the leading text-books and books of reference. The Legislature of 1911 has also appropriated one thousand dollars for the purchase of new books.

THE MARSHALL DEBATING SOCIETY

It is important that those who study law and intend to engage in its practice should give attention to the subject of public speaking. To suppose that excellence in public speaking and debating is a gift of nature only and not the result of patient and persistent effort, is a mistake. Believing in the truth of these statements, the students in the College of Law met early the first year and organized a society that would secure to its members practice in debating and public speaking and experience in arguing legal questions, as well as drill in parliamentary law. The society was fittingly named "The Marshall Debating Society," in honor of the memory of that distinguished Southern jurist, John Marshall. The membership and work in the society are limited to students in the College of Law, but the Faculty give all assistance and encouragement to the work that is possible.

UNIVERSITY PRIVILEGES

The advantages of the other departments of the University are open to such students in the College of Law as desire and are able to accept them. Courses in Constitutional and Political History, International Law, Political Economy, Logic, Rhetoric and English Composition are particularly recommended to law students. No extra charge will be made for such courses, but

students in the College of Law will be permitted to take them only with the consent of the Law Faculty and the professors whose courses they wish to take.

DEGREE

The degree of Bachelor of Laws (LL.B.) is conferred upon those students who satisfactorily complete the course of study as previously described. Students admitted to advanced standing may, if they do satisfactorily the work as prescribed by the rules of the department, receive the degree after one year's residence, but in no case will the degree be granted unless the candidate is in actual residence during all of the second year.

ADMISSION TO THE BAR

The graduates of the College of Law are licensed by the Supreme Court, without examination, to practice in all the Courts of Florida upon presenting their diplomas, duly issued by the proper authorities and upon furnishing satisfactory evidence that they are twenty-one years of age and of good moral character.

Books.—The text-books used in the College of Law will, in most cases, be found in the law library, but it will be necessary for students to provide themselves with books for their daily use. The cost of books is about forty-five dollars a year for each year of the course. Nearly all of the books are standard texts and will form a nucleus of the student's future library.

THE TEACHERS' COLLEGE AND NORMAL SCHOOL

FACULTY

ALBERT A. MURPHREE, A.M., LL.D.,
President.

JNO. A. THACKSTON, Pd.M., Ph.D.,
Dean.
Professor of Education and High School Inspector.

HARVY W. COX, A.M., Ph.D.,
Professor of Psychology and Education.

GEO. M. LYNCH, A.B.,
Professor of Elementary Education and Inspector of Rural Schools.

*_____,
Assistant Professor of Psychology and Education.

*_____,
Instructor in Education.

JAS. M. FARR, A.M., Ph.D.,
Professor of English.

EDWARD R. FLINT, Ph.D., M.D.,
Professor of Chemistry.

J. R. BENTON, A.B., Ph.D.,
Professor of Physics.

C. L. CROW, M.A., Ph.D.,
Professor of Modern Languages.

JAS. N. ANDERSON, M.A., Ph.D.,
Professor of Ancient Languages.

H. S. DAVIS, Ph.D.,
Professor of Zoology.

J. J. VERNON, B.Agr., M.S.A.,
Professor of Agriculture.

H. G. KEPPEL, A.B., Ph.D.,
Professor of Mathematics.

*To be elected.

W. L. FLOYD, M.S.,
Professor of Botany.

L. L. BERNARD, A.M., PH.D.,
Professor of History and Economics.

M. B. HADLEY, B.S.,
Instructor in Mathematics.

W. S. PERRY, A.B.,
Instructor in Physics.

J. W. ZELLER, B.M.E.,
Instructor in Manual Training.

E. B. DONNELL, A.B.,
Fellow Assistant in English and History.

B. G. LANGSTON, A.B.,
Student Assistant in Latin.

E. E. MACY, A.B., M.D.,
Assistant in Normal School.

R. S. BLANTON, B.I.,
Student Assistant in Normal School.

GENERAL STATEMENT

It is the purpose of the Teachers' College and Normal School to prepare teachers for the public schools of Florida. It aims to give that training that will properly fit men to teach in and become principals of grammar and high schools, to be supervisors, county and city superintendents; to give that information, insight and appreciation of our educational problems and principals that each intelligent citizen of every community should possess, and to prepare teachers in the Review Courses for the County and State certificates. This college is the professional school for teachers in the University and aims to bend every effort toward giving the State a supply of trained teachers.

The Peabody Education Board has recently given $40,000 to the University for the purpose of erecting a building for this college. This building is to be modern in every respect, and will contain all the lecture rooms, society halls, reading rooms,

laboratories and libraries that a modern college of this kind needs. With this building finished and equipped as proposed, nothing will hinder its realizing its aims as above stated.

LIBRARY.—The pedagogical library receives many of the best educational journals and is supplied with the standard books on educational theory, general and special methods, the history of education, psychology and philosophy. A great addition will be made to these during the coming fall.

PSYCHOLOGICAL LABORATORY.—The new Psychological Laboratory is to be placed in the Peabody Hall. This will give teachers a wonderful opportunity to investigate at first hand the great laws of the mind. To know these through experiment will give the teacher a far greater power to direct properly their development in the child. The laboratory will contain all of the appliances and apparatus necessary for thorough and efficient work in experimental psychology.

THE TEACHERS' CLUB.—This club is an organization of the teachers of this college. It meets once a week and discusses educational problems. The new building will provide a special hall for it, and then the good work that has been carried on by the club will be better even than formerly. Every teacher in this college is expected to become a member of it and lend his best efforts toward making it a greater success. No part of the college work is more important than this.

ADMISSION.—The admission to this college is the same as for the College of Arts and Sciences. For this see pages 42 to 52. No special entrance requirements will be made for those who desire to take the Normal and Review Courses. All those who can profit by taking these courses may enter and take up those studies best suited to their need.

NORMAL AND REVIEW COURSES.—Besides the two following curricula, which lead to two degrees, Normal and Review Courses are offered. These courses are for the purpose of preparing teachers for the rural and village schools and the grammar school work in general. They also give opportunity to teachers to prepare themselves for the county and State certificates. These courses will include a thorough review of all the elementary and grammar school subjects, with a view to teaching them. A

thorough mastery of the subject matter will be insisted upon and then methods for the presenting of these subjects will be given. The elementary principles of teaching and psychology will also be included. In fact, these courses will attempt to qualify thoroughly teachers for the work in the elementary and grammar grades. Students may enter these Normal and Review Courses at any time during the year. The spring Review Courses will continue as usual.

CURRICULA AND DEGREES.—Two curricula are offered, each requiring four years. One leads to the degree of Bachelor of Arts in Education; the other leads to the degree of Bachelor of Science in Educarion.

TEACHERS' EMPLOYMENT BUREAU.—It is the purpose of this Bureau to keep records of the graduates of the University who are fitted by their training for the profession of teaching and to recommend them to school boards who are in need of efficient principals and teachers. Already the demand for our graduates and students is greater than the college can supply. County superintendents and school boards are requested to correspond with us when in need of well-trained and efficient teachers.

ELECTIVES.—That graduates may be well prepared to teach two or three of the high school subjects, nine hours of electives are offered in both curricula in the junior and senior years, respectively. In choosing these electives the student is required to elect those special studies which he prefers to teach and to make himself especially proficient in them by pursuing them two consecutive years.

CURRICULUM

Leading to the Degree of Bachelor of Arts in Education.

Freshman Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
Education I	Psychology	2	155
English I	American Literature, English Literature	3	72
French I or German I	Elementary Course Elementary Course	5	84 85
History I	Modern European History	2	76
Latin I	Livy, Ovid, Virgil, Grammar, Composition	3	65
Mathematics I*a* and I*b*	Solid Geometry, Trigonometry	5	82
		20	

Sophomore Year.

Education II	Methods	3	155
Education III	School Management, Supervision		155
English II	Advanced College Rhetoric	3	72
French II or German II	Intermediate Course Intermediate Course	3	85 85
History II	United States since 1783	3	77
Latin II	Cicero, Pliny, Horace, Composition, Grammar	3	65
Mathematics II	Plane Analytic Geometry; Higher Algebra	3	82
		18	

Junior Year.

Education IV	History of Education	3	156
Education V	Secondary Education	3	156
Philosophy I*a* and I*b*	Psychology	3	86
Physics I or Chemistry I	General Physics General Chemistry	3	88 69
Electives	To be chosen from Elective Group	6	154
		18	

Senior Year.

Education VI	Principles and Philosophy of Education	3	156
Education VII and Education VIII	Child-Study Practice Teaching	3	157 157
Philosophy II*a* and II*b*	Ethics	2	86
Electives	To be chosen from Elective Group	9	154
		17	

CURRICULUM

Leading to the Degree of Bachelor of Science in Education.

Freshman Year.

Names of Courses.	Nature of Work.	Hours Per Week.	Description, See Page.
Agronomy I	General Agriculture	3	102
Botany I	General Botany	3	68
Education I	Psychology	2	155
English I	American Literature, English Literature	3	72
French I or German I	Elementary Course / Elementary Course	5	84 / 85
Mathematics I*a* and I*b*	Solid Geometry, Trigonometry	5	82
		21	

Sophomore Year.

Chemistry I	General Inorganic Chemistry	3	69
Education II	Methods	3	155
Education III	School Management and Supervision		155
English II	Advanced College Rhetoric	3	72
French II or German II	Intermediate Course / Intermediate Course	3	85 / 85
Physics I	General Physics	3	88
Zoology I	General Zoology	3	89
		18	

Junior Year.

Economics I or History II	Principles of Economics / United States Since 1783	3	78 / 77
Education IV and Education V	History of Education / Secondary Education	3	156 / 156
Philosophy I*a* and I*b*	Psychology	3	86
Electives	To be chosen from Elective Group	9	154
		18	

Senior Year.

Education VI	Principles and Philosophy of Education	3	156
Education VII and Education VIII	Child-Study / Practice Teaching	3	157 / 157
Philosophy II*a* and II*b*	Ethics	2	86
Electives	To be chosen from Elective Group	9	154
		17	

ELECTIVES

REGULATIONS.—Upon registration for the Junior year, each student shall submit his choice of electives to the Dean of the College.

In the B. S. Course Juniors shall elect not more than two subjects in the language and philosophical groups. Seniors shall elect not less than one subject in the philosophical group, and at least one in the science group.

No student shall elect more than the required number of electives without the approval of the Dean of the College.

ELECTIVE GROUPS

I. Language Group.
English,
Latin,
Greek,
French,
German,
Spanish,
Italian,

II. Philosophy Group.
Psychology,
Ethics,
Logic,
Bible IV,
History,
Pedagogy,
Public Law,
Economics,
Sociology.

III. Science Group.
Mathematics,
Agriculture,
Astronomy,
Chemistry,
Physics,
Geology,
Zoology,
Botany,
Physiology,
Bacteriology,
Surveying,
Mechanics,
Drawing,
Descriptive Geometry,
Shop.

DEPARTMENTS OF INSTRUCTION

EDUCATION

PROFESSOR THACKSTON
PROFESSOR COX
PROFESSOR LYNCH

EDUCATION I.—*Psychology.*—This is an elementary course designed to set forth the main phenomena of mental life, and furnish the student with the concepts and terms which will constantly recur in his further study. This course will aim especially to prepare the student for the examination on Psychology for the State Certificate. The text-book prescribed from time to time by the State Superintendent of Education will be used in connection with lectures and much reference work to the standard American writers. This year Thorndike's Elementary Psychology is the text. (*Required of Freshmen in Educational Curriculum; both semesters, 2 hours.*)

EDUCATION II.—*Elementary Education.*—This course aims to teach the accepted principles of instruction, and general and special methods. Teaching children how to study and how to use their time outside of the recitation is one of its aims, while to give methods in the elementary and grammar school subjects receives about two-thirds of the time. This course not only teaches the student how properly to instruct his pupils in the methods of study, but is of great value to him throughout his whole college course and future work. Special attention will be given to the rural schools. Books similar to the following will be used: How to Study and Teaching How to Study, McMurry; Methods of Teaching, Winterburn; Teaching of Elementary Mathematics, Smith; Teaching of English, Chubb; Teaching of Geography, Sutherland; Special Method in Reading, McMurry; Methods in History, McMurry, etc. (*Required of Sophomores in the Educational Curriculum; first semester, 3 hours.*)

EDUCATION III.—*School Management and Supervision.*—This course is designed to give the practical and theoretical informa-

tion needed by principals and county superintendents. During the year many practical problems are taken up and fully discussed. Discipline, school and class hygiene, purpose of education, organization and classification, grading and promoting—special plans of promotion being discussed—programs, time tables, report cards, plan and progress books, departmental teaching, exercises and intermissions, the recitation, etc. The books used are: Classroom Management, Bagley; School and Class Management, Arnold; Special Method of the Recitation, McMurry; School Hygiene, Shaw; Elementary Education, Keith; The School and Its Life, Gilbert; Grading of Schools, Shearer; and many references are given to other books in the library. (*Required of Sophomores in Educational Curriculum; second semester, 3 hours.*)

EDUCATION IV.—*History of Education.*—This course has two main purposes. First, endeavor is made to lead the student to see and appreciate the good things in the many systems of education studied and apply them to his own present-day work as far as possible. In the second place, fine ideals and incentives for devotion to his calling are furnished by studying the lives and works of the great educational leaders. (*Required of Juniors in the Educational Curriculum; elective; first semester, 3 hours.*)

EDUCATION V.—*Secondary Education.*—This course is designed especially to give instruction in the study of the secondary and high school. Many problems relating to the high schools in this and other Southern States are thoroughly gone over for the purpose of understanding the present situation and planning for better things. The following special topics may be mentioned: Psychology and Pedagogy of Adolescence, Technical High Schools, High-School Athletics, History of Secondary Education, High-School Course, comparative study of secondary education in the different countries, etc. Lectures and reference work supplement the reading of several texts on this subject in the class. (*Required of Juniors in the Educational Curriculum; elective; second semester, 3 hours.*)

EDUCATION VI.—*The Principles and Philosophy of Education.*—This course attempts to select from modern psychology all of the facts that will aid the teacher in obtaining a clearer in-

sight into the actual workings of the child's mind in the process of learning. The following are a few of the topics studied: the brain and nervous system, the place of the body in education, attention, interest, imitation, the social, moral and religious aspects of education, etc. The Growth of the Brain, Donaldson; Interest and Education, De Garmo; A Broader Elementary Education, Gordy; The Philosophy of Education, Horne; Social Education, Scott; The Principles of Education, Bolton. (*Required of Seniors in the Curriculum of Education; elective; both semesters*, 3 *hours.*)

EDUCATION VII.—*Child Study.*—The aim of this course is to give the student an insight into the physical development and growth of the child, the meaning of protracted infancy, the origin and development of instincts, development of intellect, heredity, individuality, abnormalities and the application of facts learned to school work, etc. Fundamentals of Child Study, Genetic Psychology, Kirkpatrick; Studies in Education, Barnes; Moral instruction of Children, Adler; The Development of the Child, Oppenheim; Physical Nature of the Child, Rowe. (*Required of Seniors in the Curriculum of Education; elective; first semester*, 3 *hours.*)

EDUCATION VIII.—*Practice Teaching.*—Knowledge of the principles, theory and history of education will better fit any teacher for his work, but these without concrete experiences and practice under direction will not give the best results. Realizing this, this course is planned for the purpose of giving this experience under the supervision and watch-care of the professor in charge of the department in which the subject is taught. This practice teaching will occupy the same position in the teachers' course as laboratory work does in the science departments and will have the same proportion of credit as laboratory work. (*Required of Seniors; second semester*, 3 *hours.*)

AGRICULTURE

PROFESSOR VERNON

Agronomy I.—See page 102.

ANCIENT LANGUAGES

PROFESSOR ANDERSON

Latin I.—See page 65.

Latin II.—See page 65.

BOTANY

PROFESSOR FLOYD

Botany I.—See page 68.

CHEMISTRY

PROFESSOR FLINT

Chemistry I.—See page 69.

ENGLISH

PROFESSOR FARR

English I.—See page 72.
English II.—See page 72.

HISTORY AND ECONOMICS

PROFESSOR BERNARD

History I.—See page 76.
History II.—See page 77.
Economics I.—See page 78.

MATHEMATICS

PROFESSOR KEPPEL

Mathematics I.—See page 82.
Mathematics II.—See page 82.

MODERN LANGUAGES

PROFESSOR CROW

French I.—See page 84.
French II.—See page 85.
German I.—See page 85.
German II.—See page 85.

PHILOSOPHY

PROFESSOR COX

Philosophy I.—See page 86.
Philosophy II.—See page 86.

PHYSICS

PROFESSOR BENTON

Physics I.—See page 88.

ZOOLOGY

PROFESSOR DAVIS

Zoology I.—See page 89.

STATE HIGH SCHOOL INSPECTION

This division of the college was made possible by the generous aid of the General Educational Board of New York. (See page 14.)

The Dean of the College will visit and inspect the high schools in the State, give what aid he can in the establishment of high schools where they do not exist and help to advance those already established. Where his co-operation is desired, the inspector will take great pleasure in conferring with county superintendents, school boards, principals, teachers and citizens on any educational matter that may tend to the welfare and advancement of the high schools in the State

RURAL SCHOOL INSPECTION

The inspection of rural schools is a new phase of the work of the department and was made possible by the munificence of the Southern Educational Board. This Board furnishes all the funds necessary for the maintenance of this position through the State Department of Education, under the direction of the State Superintendent of Education.

Professor Lynch, who has charge of this work, will visit, inspect and in every way aid in the advancement of rural schools in the State. He will gladly co-operate with county superintendents, school boards, teachers and citizens in the advancement of rural education.

NORMAL SCHOOL

Believing that the professional work of teachers should not begin before they have had at least two years of the high school course, the Normal School has for its first two years the ninth and tenth grades of the Standard High School. But no one will be admitted to this department except those who intend to teach.

Students may enter the first year of the Normal School, provided they have completed the work equivalent to that of the eighth grade of our graded schools.

The Review Courses for teachers will cover all the subjects required for the County and State certificates. Teachers may enter these courses at any time during the session. They can always find classes that will suit their needs.

CURRICULUM

First Year.

Names of Courses.	Nature of Work.	Hours Per Week.
English	Grammar, Composition, Classics..	4
History	General History	4
Latin	Beginner's Latin	4
Mathematics	Algebra	4
Science	Physical Geography	2
		18

Second Year.

English	Rhetoric, Composition, Classics...	4
History	General History	4
Latin	Cæsar, Composition	4
Mathematics	Algebra	4
Science	Botany or Zoology	4
		20

Third Year.

Education *a*	School Management	2
Education *b*	Review and Methods of Grammar School Subjects	3
English	Rhetoric, Composition, Classics...	5
Take two of the following:		
History	English History	5
Latin	Cicero, Composition	5
Mathematics	Plane Geometry	5
Science	Physics	5
		20

Fourth Year.

Education *c*	Psychology	2
Education *d*	Review and Methods of Grammar School Subjects	3
English	History of American Literature, History of English Literature.	5
Take two of the following:		
History	English History	5
Latin	Virgil, Composition	5
Mathematics	Solid Geometry, Trigonometry...	5
Science	Chemistry	5
		20

THE MODEL HIGH SCHOOL OF THE COLLEGE OF EDUCATION

This part of the work of the University includes the former Sub-Collegiate Division. Hereafter it will be connected with the College of Education and Normal School and will be used as a practice and model school for the students of this college. Here student-teachers will have opportunity to observe skilled instructors teach the high school subjects, and will also engage in their practice-teaching in those subjects that they desire to teach in the high schools.

ADMISSION.—Only graduates of Junior High Schools, or students who have finished work equal to that of the tenth grade, will be admitted to this High School. NO STUDENT WILL BE ADMITTED WHO HAS NOT COMPLETED THE COURSE OFFERED BY THE HIGH SCHOOL AT HIS HOME.

This rule will not be waived for any student except upon the written application of the parent or guardian, accompanied by the endorsement of his high school principal.

The work offered will be that of the eleventh and twelfth grades of the Standard High Schools of Florida, and will be as follows:

CURRICULUM, CLASSICAL

Eleventh Grade.

Names of Courses.	Nature of Work.	Hours Per Week.
English	Rhetoric, Composition, Classics	5
History	English History	5
Latin	Cicero, Composition	5
Mathematics	Plane Geometry	5
		20

Twelfth Grade.

English	History of American Literature, History of English Literature.	5
History	American History	5
Latin	Virgil, Composition	5
Mathematics	Solid Geometry, Plane Trigonometry	5
		20

CURRICULUM, SCIENTIFIC

Eleventh Grade.

English	Rhetoric, Composition, Classics	5
History	English History	5
Mathematics	Plane Geometry	5
Science	Physics	5
		20

Twelfth Grade.

English	History of American Literature, History of English Literature.	5
History	American History	5
Mathematics	Solid Geometry, Plane Trigonometry	5
Science	Chemistry	5
		20

Those who are able to enter the twelfth grade in the fall of 1912-13 will take, instead of the twelfth grade, the Freshman Class, as is found described in the different colleges. Those who enter in the fall of 1913-14 will take one of the grades as above described. Those who enter the eleventh grade in 1912-13 will have to take both grades before they will be admitted into the Freshman Classes of the colleges.

UNIVERSITY EXTENSION

DIVISION OF UNIVERSITY EXTENSION

P. H. ROLFS, M.S.,
Director of Experiment Station, and Superintendent of Farmers' Institutes.

A. P. SPENCER, M.S.,
Assistant in Extension Work.

The extension division is carried on for the purpose of extending the benefits of the University to every community in the State: to the farmers, that they may have the direct benefit of the latest discoveries; to the dwellers in cities that they may enjoy the advantages of the most advanced educational work; to the children of the State, to prepare them for the larger citizenship, the burdens of which they must soon assume. The work carried on this year broadened out into nine more or less distinct lines:

1. Farmers' Institutes.
2. Women's Institutes.
3. Boys' Corn Clubs.
4. Girls' Canning Clubs.
5. Farm Demonstration Work.
6. Lecture and Literary Bureau.
7. Field Instruction.
8. Farmers' Demonstration Train.
9. Correspondence Courses.

FARMERS' INSTITUTES

C. K. MCQUARRIE, ASSISTANT SUPERINTENDENT OF FARMERS' INSTITUTES

The Farmers' Institute service brings directly to the workers of the soil the most advanced information in agriculture. The discoveries made by the Experiment Station and the latest teachings of the Agricultural College are prepared in such a way that the average farmer can understand and profit by these discoveries and teachings. These Farmers' Institutes are really short courses in agriculture held in various communities of the State. In the older States, where they have been held for a

number of decades, the teaching is done as carefully as in any of the colleges or universities. The amount of this work that can be done in Florida depends directly upon the amount of support received.

In Florida the matter has been so systematized that the Farmers' Institute workers give the largest and best results possible to the State.

Equipment.—The Farmers' Institute squads are equipped with the best and most complete appliances. For the lecture work, sixty large charts, six feet square, are used. These tabulate the lectures that are delivered in such a way as to make the main points stand out strongly before the audience. To supplement the charts about one hundred enlarged photographs are carried with the squad. These photographs illustrate the particular points upon which the lecturers are talking.

Results.—The results from systematic work in Farmers' Institutes are felt almost immediately in the very general improvement of agricultural conditions. In Florida the activities of the Farmers' Institutes have been coincident with the greatest improvement in crop production that the State has ever seen. Taking corn as an illustration, the crop for 1907 was the largest that had been produced up to that time, amounting to 4,351,000 bushels. During that year 42 sessions of Institutes were held, with a total attendance of 4,491. The average corn production for that year was 9.6 bushels per acre. In 1908, 6,584,000 bushels of corn were produced, at the rate of 10.5 bushels per acre. During this year 54 sessions were held, with a total attendance of 5,576. During 1909 the total corn crop amounted to 8,379,000 bushels, with an average production of 12.6 bushels per acre. During that year nearly 100 institutes were held, with a total attendance of about 10,000 people. During the fiscal year ending June 30, 1911, 192 sessions of institutes were held with a total of 19,064 in attendance. The corn production for the year 1911 rose to 14 bushels per acre, on the average for the State, reaching almost a fifty per cent increase of yield per acre since the beginning of systematic Farmers' Institute work. This increase adds millions of dollars annually to the farmers of the State by simply improving the methods of farming. The effect of the work done in 1911 will be manifested by an improvement in the farming

conditions for the year 1912. The majority of the institutes were held in the corn-producing section of the State, and as the lectures were designed for the betterment of the soil and for the improvement especially of the corn crop, the institutes must have had more or less beneficial effect upon the production of that year. From the foregoing figures it will be seen that as a result of better farming the average production per acre of corn was increased from 9.6 bushels to 14 bushels—an increase of 46 per cent in corn production from the year 1907 until 1911. This increase in crop production was due for the most part, or entirely, to better farming methods. Other farm crops have been improved in a similar way; but the corn crop, being the largest of the farm crops, serves best for illustrative purposes.

Work Done.—In addition to the improvement in the production of crops, the Farmers' Institutes promote improvement in the conditions of rural life. By the development of a rural spirit, a greater interest is taken in the farm home, in the rural school, and in the rural church, where the Farmers' Institutes are frequently held. The institutes bring about a healthy rivalry in the production of various crops, by bringing the farmers together to discuss methods of farm production and compare various farm products.

The Farmers' Institute workers have taken an active interest in the county fairs and State fairs, aiding by advice and by acting as judges, thus promoting an enthusiasm for producing better crops and better livestock.

During the fiscal year ending June 30, 1911, one hundred and ninety-two sessions of Institutes were held. During that time there were 19,064 people in attendance, and 531 addresses were delivered, 376 of them by people from the University. The average attendance on the institutes was 99. (These figures are from actual count, not from estimate.)

WOMEN'S INSTITUTES

This line of extension work is now recognized by nearly all of our Southern States. It is a well appreciated fact that better crops and better farms are only a step in the direction of better homes. Better homes can be gotten only through the activities

of our women—the home builders. It is well known that our homes, especially the farm homes, are less likely to be supplied with modern utensils and fixtures than the farm and farm yards.

FARMERS' INSTITUTE SPEAKERS FROM UNIVERSITY OF FLORIDA

Dr. A. A. Murphree, President.
Prof. P. H. Rolfs, Director of Florida Experiment Station and Superintendent of Farmers' Institutes.
Mr. C. K. McQuarrie, Assistant Superintendent Farmers' Institutes.
Prof. A. P. Spencer, Assistant in Extension Work.
Prof. J. M. Scott, Animal Industrialist and Assistant Director, Florida Experiment Station.
Prof. A. W. Blair, Chemist, Florida Experiment Station.
Dr. E. W. Berger, Entomologist, Florida Experiment Station.
Prof. B. F. Floyd, Plant Physiologist, Florida Experiment Station.
Prof. H. S. Fawcett, Plant Pathologist, Florida Experiment Station.
Prof. S. E. Collison, Assistant Chemist, Florida Experiment Station.
Mr. John Belling, Assistant Botanist, Florida Experiment Station.
Professor J. J. Vernon, Dean of College of Agriculture.
Dr. E. R. Flint, Professor of Chemistry.
Dr. J. M. Farr, Professor of English.
Prof. G. M. Lynch, Professor of Elementary Education.
Prof. R. D. Maltby, Assistant Professor of Dairying and Animal Husbandry.
Major W. L. Floyd, Professor of Botany and Horticulture.

FARMERS' INSTITUTE SPEAKERS (NOT OFFICIALS OF THE UNIVERSITY OF FLORIDA)

Prof. W. L. Bucholz, Superintendent of Public Instruction, Hillsboro County, Tampa.
Dr. W. F. Blackman, President Rollins College, Winter Park.
Mr. F. F. Bingham, Pensacola.
Mr. C. S. Bushnell, County President, Farmers' Union, Arcadia.
R. P. Burton, Sales Manager, Florida Citrus Exchange, Tampa.
G. A. Danley, United States Demonstration Agent, Chipley.
Prof. C. L. Duncan, Professor of Agriculture, Auburn, Alabama.
W. M. Gist, McIntosh.
W. T. Cash, Shady Grove.
W. P. Gammas, Greenwood.
J. U. Philpot, Trenton.
Kenneth Bruce, DeFuniak Springs.
W. B. Hare, Arcadia.
R. C. Thornhill, Wauchula.
J. O. Crews, Longbridge.
W. A. Tison, Graham.
C. K. Allan, Sopchoppy.
Miss A. S. Harris, Woman's College, Tallahassee.
Prof. H. H. Hume, Glen Saint Mary.
Hon. W. M. Holloway, State Superintendent of Public Instruction, Tallahassee.
L. Heimberger, Tallahassee.
E. C. Johnston, Live Oak.
M. S. Knight, Lake City.
E. W. James, Good Roads Specialist, Washington, D. C.

Prof. C. B. King, Principal of Public School, Sneads.
Dr. J. L. Kelly, Superintendent Public Instruction, Gainesville, Alachua County.
Hon. A. S. Meharg, State Agent, United States Farm Demonstration, Live Oak.
Hon. J. W. Mahaffey, Gretna.
J. B. McColsky, Chipley.
O. L. Mizzell, Dukes.
Dr. R. N. McMullen, Largo.
Miss M. McCarty, Director Household Economics, Woman's College, Tallahassee.
A. J. Mitchell, Director of Weather Bureau, Jacksonville.
J. G. Osteen, Donnie.
T. D. Owen, Chipley.
Capt. R. E. Rose, State Chemist, Tallahassee.
Hon. J. W. Rawls, Greenwood.
L. T. Roux, Gainesville.
Dr. E. H. Sellards, State Geologist, Tallahassee.
Hon. J. L. Shepard, Greensboro.
C. H. Simpson, Milton.
R. W. Storrs, DeFuniak Springs.
Mrs. T. M. Shackleford, President Florida Federation of Woman's Clubs, Tallahassee.
G. A. Waterman, Secretary Commercial Club, Pensacola.
G. W. Wiegand, Hilliard.
W. W. Yothers, Bureau of Entomology, Orlando.
Dr. Edward Conradi, President Woman's College, Tallahassee.
R. L. Turner, Superintendent Public Instruction, Inverness, Citrus County.
Dan Trotman, Superintendent Public Instruction, DeFuniak Springs, Walton County.
H. E. Savely, Field Agent Farmers' Co-operative Demonstration Work, Washington, D. C.
O. H. Benson, Assistant in Demonstration Club Work, Washington, D. C.
Susie V. Powell, State Agent Girls' Tomato Club, Mississippi.
S. J. Cowan, Milledgeville, Georgia.
Hon. A. D. Adkins, Starke.
Shelton Phillips, Bronson.
W. H. Mohr, St. Petersburg.
A. J. Pettigrew, Sarasota.
H. L. Buckley, Professor of Biology, Ruskin College, Ruskin.

PRESIDENTS AND SECRETARIES OF LOCAL FARMERS' INSTITUTES

Alachua County—

Trenton: C. A. Williams, Pres.; R. H. Jones, Secy.
Bell: J. E. Williams, Secy.
High Springs: A. E. Summers, Pres.
Island Grove: J. R. Shaw, Pres.; H. M. Baker, Secy.

Bradford County—

Lake Butler: O. L. Mizzell, Pres.; H. N. Hodges, Secy.
Worthington Springs: J. L. Dubose, Pres.; W. Williams, Secy.
Oak Grove: J. J. Blackwelder, Pres.; W. H. Kerse, Secy.
Providence: J. D. Stencil, Pres.; P. J. Taylor, Secy.
Brooks: W. H. Andrews, Pres.; T. L. Chancy, Secy.
Heilbron: J. D. McCormick, Pres.; J. E. J. Wainwright, Secy.

Calhoun County—

Blountstown: W. H. Leonard, Pres.; C. L. Hobbs, Secy.
Altha: J. N. Cox, Pres.; W. L. O'Bryan, Secy.

DeSoto County—

Arcadia: C. S. Bushnell, Pres.; W. P. Tucker, Secy.
Bowling Green: J. H. Parrish, Secy.
Lilly: W. P. Roberts, Pres.; J. H. Durrance, Secy.
Wauchula: T. G. Wilkerson, Pres.; E. C. Thornhill, Secy.

Escambia County—

Whitmire School: R. E. Jones, Pres.; Mrs. M. H. Fairchild, Secy.
Myrtle Grove School: Mrs. E. M. Graves, Pres.; F. L. Thompson, Secy.
Cottage Hill: G. C. Hardy, Pres.; C. W. McDonald, Secy.

Gadsden County—

Greensboro: Hon. J. L. Shepard, Pres.; M. N. Smith, Secy.
Gretna: W. P. Humphries, Pres.; Hon. J. W. Mahaffey, Secy.
Havana: A. J. Smith, Pres.; C. B. Wilcox, Secy.

Holmes County—

Bonifay: J. McLauchlin, Pres.; W. A. Sessoms, Secy.

Hillsboro County—

Knights Station: W. P. Campbell, Pres.; J. J. Bradford, Secy.
Riverview: Dr. Lewis Symmes, Secy.
Largo: W. A. Belcher, Pres.; A. J. Kilgore, Secy.
Hopewell: Robert McDonald, Pres.; C. H. Buggs, Secy.
Ruskin: L. L. Dickman, Pres.; Prof. H. L. Buckley, Secy.

Hamilton County—

Jennings: B. W. Wells, Pres.; B. J. W. Blair, Secy.

Jackson County—

Greenwood: W. B. Bryan, Secy.
Marianna: C. E. Pledger, Pres.; J. W. Johnson, Secy.
Sneads: J. H. Stone, Pres.; C. B. King, Secy.

Leon County—

Miccosukee: R. Harold, Pres.; John A. Scruggs, Secy.

Liberty County—

Bristol: Dr. E. K. Thagard, Pres.; D. H. Freeman, Secy.

Madison County—

Hickory Grove: Blake McLeod, Pres.; B. M. Williams, Secy.

Marion County—

Reddick: H. G. Tinker, Pres.; L. S. Light, Secy.
Morriston: Lauton Priest, Pres.; L. T. Hendris, Secy.

Nassau County—

Hilliard: A. G. Vensel, Secy.
Callahan: W. W. Cushing, Pres.; D. H. Petree, Secy.

Orange County—

Zellwood: C. H. Baker, Pres.; Wm. Edwards, Secy.
Cameron City: C. C. Worthington, Pres.; Miss Neva Gormley, Secy.
Taft: C. W. Tharp, Pres.; J. G. Barron, Secy

Osceola County—

St. Cloud: F. P. Wentworth, Pres.; W. P. Lynch, Secy.

Putnam County—
Mannville: Robt. Dougherty, Pres.; G. I. Homel, Secy.

Pasco County—
Zephyrhills: O. E. Briggs, Pres.; U. G. Clark, Secy.
Crystal Springs: W. H. Brophy, Pres.

Polk County—
Bartow: G. R. Davis, Pres.; Dr. E. C. Conant, Secy.
Davenport: F. B. Hitchcock, Pres.; H. E. Sands, Secy.
Ft. Meade: G. R. Hancock, Pres.; Kline O. Varn, Secy.
Lakeland: Judge W. S. Preston, Pres.; Eugene Finn, Secy.
Winter Haven: J. A. Curry, Pres.; Earl Haskin, Secy.

Santa Rosa County—
Milton: C. H. Simpson, Pres.; S. J. Harvey, Secy.
Cobb: Dr. G. W. McLarty, Pres.; J. L. Miller, Secy.
Allentown: R. T. Oglesby, Pres.; P. S. Clark, Secy.
Camp Walton: W. H. Hargrove, Pres.; Prof. F. P. Strong, Secy.

St. Johns County—
St. Johns Park: H. L. Stewart, Pres.; E. F. Warner, Secy.

Taylor County—
Perry: J. C. Calhoun, Sr., Pres.; Prof. W. A. Hendry, Secy.

Walton County—
Glendale: Wm. Murphy, Pres.; J. W. Henderson, Secy.

Washington County—
Chipley: J. R. McColsky, Pres.; C. E. Pleas, Secy.
Lynn Haven: W. R. S. Burnett, Pres.; Frank McMullen, Secy.

Wakulla County—
Sopchoppy: W. H. Harms, Pres.; Prof. C. K. Allan, Secy.
Medart: C. B. Pigott, Pres.; J. I. Langston, Secy.
Wakulla: J. H. Linton, Pres.; Asa May, Secy.

BOYS' CORN CLUBS

The Boys' Corn Clubs were started during the year 1910. During 1910 and 1911 the work was carried on by distributing special seed to the various boys and girls who registered in the clubs. The leader of the Boys' Corn Club work was Prof. J. J. Vernon, Dean of the College of Agriculture. With assistants, Prof. Vernon visited various localities in which the clubs had been organized and gave instruction in better corn growing. In the spring of 1912 the work was taken up in co-operation with the United States Department of Agriculture, and the corn club work was segregated so as to include boys only. Any school boy over ten years of age and under eighteen may enter the club. He is required to grow an acre of corn under the instruction of Dean J. J. Vernon, the leader of the Corn Club work. Special

prizes are offered by various progressive business men and others for the best acres of corn produced in this way.

GIRLS' CANNING CLUBS

The Girls' Canning Club work was taken up by the Extension Division in co-operation with the United States Department of Agriculture and under the direct charge of Dean J. J. Vernon, of the College of Agriculture. The work is carried on somewhat similarly to the Boys' Corn Clubs, the girls growing a fraction of an acre of tomatoes and being then instructed in the method of canning. A lady agent is appointed for each county in which clubs exist, who visits the various localities where girls' canning clubs have been organized and gives instructions in the growing and canning of tomatoes.

All communications relating to the Boys' and Girls' Club Work in Florida should be addressed to J. J. Vernon, Dean of the College of Agriculture, Gainesville, Florida.

FARM DEMONSTRATION WORKERS

The Farm Demonstration Workers assembled at the University from Oct. 16 to 21, 1911, to attend lectures and field demonstrations offered by the professors of the Extension Division, the Experiment Station Staff, and the College of Agriculture. This gave an excellent opportunity for these various Farm Demonstration Workers to become well acquainted with the workings of the various divisions and departments in the University. In turn, these demonstration agents are able to carry back to their various counties the latest scientific information applicable to farming.

LECTURE AND LITERARY BUREAUS

Teachers, and others interested, are again reminded that since September, 1906, the University has maintained extension work, under which courses of free lectures will be delivered, if desired, to any high school in the State, and reading circles will be organized and conducted without charge in any school or community requesting them. This system tenders the services of the University to all the people of the State, and it is earnestly desired that many schools and communities will take advantage of it.

The Lecture Bureau will, on request, arrange to have the President and various members of the Faculty of the University visit the various public schools of the State and give them either general or special lectures on general educational themes and on the more technical subjects connected with the work in which the several professors are actively engaged. Take, for example, the subject of Education, or of English. The Professor of Education or the Professor of English will visit one of our public schools once or more during the year, as the case may demand or circumstances justify, and will give lectures on certain phases of their respective subjects to the teachers and students and to the general public. By this means it is believed that the local school life would be quickened; the interest in that school would be stirred, and hence in all schools, and the University would again come into intimate and immediate touch with the life of the school and of the people, and would thus more fully serve the people as a public institution.

During the year special arrangements for holding lectures in several places in the State were made. The following six lectures were given to large audiences in Gainesville. This work was carried on in co-operation with the Epworth League, an institution belonging to the Methodist Church.

1. "The Philosophy of Clothes;" by Dr. H. W. Cox. Delivered January 30. 2. "Plant Associations in Florida;" by Director P. H. Rolfs. Delivered February 9. 3. "The Panama Canal Zone;" by Dr. E. R. Flint. Delivered February 23. 4. "Astronomy;" by Dr. J. R. Benton. Delivered March 22. 5. "English Translations of the Bible;" by Dr. Jas. M. Farr. Delivered April 5. 6. "The State University and Its Ideals;" by Dr. A. A. Murphree, President of the University. Delivered May 3.

The *Literary Bureau* will arrange and direct courses of reading for the teachers of the State especially, and for others who may want to take advantage of its services. It will outline courses of reading on special subjects, such as History, Economics, English, etc.; will indicate the best books to be read; will direct the reading, and help the reader in any problem or difficulty. This Bureau will also, so far as possible and consistent with the best interests involved, send out from the Uni-

versity Libraries, to school reading circles only, such books and magazines as can be obtained on the subject in hand.

County Superintendents, Principals of Schools, and others interested in this work, are requested to communicate with Professor Rolfs, Director of Extension Work, or with the President of the University, stating in what feature of the work they are most interested. They will then receive more detailed and explicit information concerning that particular phase of the work.

There will be no charge for the services of this Committee, except the necessary expenses for postage and transportation.

During the session 1912-1913 the following lectures will be offered:

PRESIDENT MURPHREE:

1. The State and Free Schools.
2. Education and Citizenship.
3. Agriculture and the Public Schools.
4. Psychology Applied to Teaching.
5. Does College Education Pay?
6. The Function of the State University.
7. History of Higher Education in Florida.
8. The University of Florida.

DR. FARR:

1. Chaucer and His Times.
2. The Early English Drama.
3. Browning and Tennyson.
4. The Novel in English.
5. The South in American Literature.

DR. THACKSTON:

1. The Reflex Influence of Teaching.
2. The New Education.
3. Manual Training.
4. Does Education Pay?
5. What a Graduate Ought to Know.

DR. FLINT:

1. A Summer in the Canal Zone (illustrated).
2. Physiology and Chemistry of Digestion.

DR. KEPPEL:

A Trip Through Holland (illustrated).

DR. BENTON:

1. Wireless Telegraphy.
2. Invisible Rays.

DR. CROW:

1. Higher Education in Germany and in the United States.
2. German Student Life.

MAJOR FLOYD:

1. Plant Propagation and Selection.
2. Plant Diseases.
3. Micro-organisms of the Garden and Farm.
4. Flower Pollination (illustrated).

DR. DAVIS:

1. Insects and Disease.
2. Good and Bad Bacteria in Milk.

PROF. VERNON:

Agricultural Instruction in the Schools of Florida—

(a) The Grammar School.
(b) The High School.
(c) The College.

FIELD INSTRUCTIONS

During the past year the Extension Division has met a demand for personal instruction in localities where many farmers are planting their first crops in Florida, and where others who have adopted more intensive culture desire information on the methods best suited to the crops in hand.

Through the co-operation of the local Farmers' Institutes appropriate times were selected when members of the Extension staff could be present and give such field instruction as was most needed.

A two-day visit was made to each locality. The first day was spent at a centrally-located farm, where crops were growing and where the farming community would assemble. A second day was taken up by visits to six or seven farms in the locality, with discussions of such problems as drainage, farm plans and the best rotations. In this way the information given applied directly to the operations of those most interested. About one thousand people received such instruction.

"BETTER FARMING SPECIAL" TRAIN

The "Better Farming Special" train made its initial trip through Florida between November 14 and December 17, 1911. It was operated by the Extension Division of the University, in co-operation with the Atlantic Coast Line; Louisville and Nashville; Live Oak, Perry and Gulf, and the Southern States Lumber Company Railroads. The total expenses of the trains, including that of the crew, were borne by these railroads. The

expense of securing, installing and exhibiting the equipment was borne by the Extension Division of the University of Florida, which also furnished twelve speakers and six assistants to display the exhibits, explain the details of the equipment and deliver the lectures. The equipment was furnished by the departments of the Florida Experiment Station, by the University of Florida, by the Woman's College of Tallahassee and by the Florida Citrus Exchange. Manufacturers and dealers in farm machinery, spraying outfits and garden tools supplied, free of cost, the entire machinery exhibit. Publishers of agricultural literature lent a farmers' library. The train was made up with one day coach, two cars of farm machinery, one car of improved breeds of hogs, one car of general exhibits and one car of citrus products (conducted only through the citrus region to illustrate methods of correct packing.)

In the general exhibit car were arranged: dairy utensils, suitable for a modern small dairy, to illustrate sanitary dairying; twenty-three samples of selected corn, thirty-two varieties of forage and other important farm crops, seeds of several varieties of legumes, samples of the raw material from which commercial fertilizers are made, a farmers' library, bulletins on agricultural and home economics published by the United States Department of Agriculture and the Florida Experiment Station, models and photographs from the College of Engineering of the University, and a display of domestic arts and domestic science from the Home Economics Department, Woman's College, Tallahassee. Bulletins on agriculture and home economics were distributed. In each of the implement cars the uses of the implements and their efficiency and labor-saving qualities were discussed. The hog car contained representative specimens of the Berkshire, Poland China, Duroc Jersey, Tamworth, Hampshire and Chester White Breeds. Much useful information was spread by this exhibit, by discussion, and in reply to questions concerning the different animals, breeds and feeds. A large collection of appropriate photographs and charts was displayed in the cars.

One to three fifteen-minute lectures were delivered at nearly every stop from either the rear of the day coach, interior of the day coach or from a platform. In all, 125 lectures were given.

The topics discussed were varied to suit the different sections and audiences. The visitors were instructed as to the exhibit material on display as they passed through and were invited to ask questions. The entire trip took over one month, and one or more stops were made in each of the thirty counties. There were seventy-one stops made, with a total attendance of 30,754, or an average of 1,144 daily. The public school pupils were given a special opportunity to view the exhibits and were conducted through the cars before the older people.

This special train has roused much interest in improved agriculture among a class of people who could not otherwise have been reached, and has proved useful in bringing to the attention of the general public the purpose and scope of the University of Florida. It is evident that the railroads of Florida named above are sufficiently interested in an efficient and prosperous rural population to lend assistance to useful Extension Work.

CO-OPERATIVE EXPERIMENTS

In the spring of 1911 the Extension Division undertook a series of experiments, in co-operation with several careful farmers, inducing them to grow some of the less-known leguminous plants with a view of ascertaining more facts as to their productiveness and resistance to root-knot and wilt diseases.

Three hundred and sixty packages of Yokohama beans, Lyon bean, Velvet bean, Iron cowpea and Brabham cowpea were distributed, with full instructions for planting, cultivating and harvesting. The following is a summary of the reports received:

Reports on Yokohama beans are favorable and indicate them to be useful in Florida on account of their maturing ninety days earlier than the velvet bean. They ripen in August and September, and the land may be prepared immediately afterward for the following winter crops. There is less likelihood of the foliage being injured by the caterpillars that attack the foliage of the velvet, Lyon beans, and cowpeas just at this season. They yield a good amount of seed, but have less vine than the velvet or Lyon beans.

Most of the reports recommend Brabham and Iron cowpeas in preference to other varieties. The Brabham is a heavy yielder of forage. The Iron yields less forage, matures earlier, and produces more seed than the Brabham. Neither of these varieties is reported as having either root-knot or wilt. Experiments on the Station Farm also indicate a resistance to these diseases, but the plants are not entirely immune from them.

The reports on the Lyon bean, as compared with the velvet bean, state that the former has a slightly shorter season; has no irritant hair on the pods; that the vines and foliage are a little more abundant; and that in other respects they are similar.

On account of the results of the distribution of the Yokohama beans last year and their usefulness the Station has been unable to supply the present demand for seed. One hundred and twenty-five packages are being sent to farmers with the hope of securing more information and assuring enough seed being grown to plant a good acreage in 1913.

Co-operative tests have been started in citrus groves, with the view of testing out a combination of recommendations of insecticides, fungicides and general grove management, the object of this co-operative work being to test whether a combination of these remedies for the suppression of insects and diseases will prove practicable and profitable.

The white fly has been a serious menace to the citrus groves of Florida for over twenty years. A remedy that has worked fairly well in the hands of many growers has been found in the fungus diseases of the white fly. Unfortunately the fungus material for this purpose is difficult to obtain at the time of the year when it can be most advantageously applied. Co-operative tests have therefore been begun to demonstrate the practicability of producing this fungus material artificially on a large scale.

CORRESPONDENCE COURSES IN AGRICULTURE

While this department is placed under this division for the sake of uniformity, the Correspondence Courses are for the present given under the direction of Dean J. J. Vernon, to whom all inquiries regarding Correspondence Courses should be addressed.

The University of Florida offers correspondence courses in agriculture for all (white) citizens of the State. These courses are designed to meet the needs of the following classes:

1. Teachers and prospective teachers.
2. Farmers and prospective farmers.
3. Farmers' wives, sons and daughters.
4. Others who may be interested.

The position of the farming classes in our social and economic system will materially change when they are equally well educated for their life work with those of any other calling. The Legislature of 1909 authorized instruction in agriculture in the public schools of Florida, and therefore, all who choose farming in the

future will have had the opportunity for gaining some training specifically designed to fit them for life upon the farm. Few who are now engaged in any of the various agricultural pursuits have had such opportunities. Recognizing this fact, the authorities are striving in every way with the means at their disposal to carry the benefits of the University to every citizen in the Commonwealth. By means of these correspondence courses it is hoped to reach a large and deserving body of citizens who, for various reasons, have heretofore been unable to gain both scientific knowledge and practical training. They have been compelled by force of circumstances to be content with practical information only.

Correspondence courses are not so effective as resident study, but they are far better than no educational advantages along these special lines. They lack the personal factor of the instructor, and lack most of the benefits of laboratory work and illustrative equipment. On the other hand, with ambitious and industrious persons, such courses develop in no small degree independence of thought and effective individuality of action. In this latter respect they are often superior to resident study.

Correspondence courses were first offered by the University in 1906. The correspondence course in agriculture for teachers was first given by the Extension Department during 1908-09.

Correspondence courses in agriculture for farmers were first offered during the year 1909-10. Twelve courses were offered. It is the aim that these courses eventually will cover all phases of rural activity. White persons only will be accepted. Colored farmers are referred to the State Normal and Industrial School at Tallahassee.

CORRESPONDENCE COURSE IN AGRICULTURE FOR TEACHERS

The correspondence course in Agriculture for teachers will begin October 1, 1912, and will close June 1, 1913. The instruction will be free and all teachers, prospective teachers and others connected with or interested in the educational work of the State are eligible. Teachers may register at any time during the year and will be allowed to pursue the work rapidly or slowly as their other duties will permit. The course aims to prepare for examina-

tions in elementary agriculture for teacher's certificates and to fit teachers for giving instruction in nature study and agriculture in the public schools of the State. The course will consist of text-book study and experimental exercises. In order to approximate to class room results rather elaborate lists of questions, each question embodying in most cases only one idea, will be issued on every lesson. The answers to these questions will be corrected when received, errors fully explained by the instructor and the manuscripts returned.

The course is based upon the text-book adopted by the State Superintendent of Public Instruction.

The expense to each teacher will be about as follows: Registration fee, $1.00; text-book, 75 cents; equipment for experimental exercises, about 50 cents; and postage on all manuscripts sent to and from the University. The instruction and other necessary literature will be furnished by the University free.

CORRESPONDENCE COURSES IN AGRICULTURE FOR FARMERS

The following courses are offered for the year 1912-13:

1. Elementary Agriculture.
2. Soils.
3. Tillage.
4. Drainage and Irrigation.
5. Manures and Fertilizers.
6. Field Crops (General).
7. Field Crops (Southern).
8. Types and Breeds of Live Stock.
9. Dairy Husbandry.
10. Poultry Husbandry.
11. Animal Breeding.
12. Feeds and Feeding.
13. Citrus Fruits and Citrus Culture.
14. Trucking.

Any course in the list may be selected. It is usually best to pursue only one course at a time. Upon the completion of one course another may be started. Furthermore, a logical order should be followed. A regular course may be arranged covering two or more years, thus affording opportunity to acquire during leisure moments a good knowledge of agriculture science—something new to think about while performing the usual work upon the farm as the weeks go by.

The course in Elementary Agriculture is intended for teachers, but anyone may take this course. In fact, many will find it desirable to begin their study of agriculture with this general elementary course.

There is no age limit and no examinations are required. Registration may be made at any time during the year and the work may be pursued rapidly or slowly as the time, ability or inclination of the individual may dictate.

To cover office expenses a Registration fee of $1.00 will be charged for each course. The instruction in all courses will be free. All persons registering for a course will be required to provide themselves with a text-book, and pay the postage on all manuscripts to and from the University.

Those who wish further information, or who desire to register for one of the courses, should communicate with J. J. Vernon, Dean of the College of Agriculture, University of Florida, Gainesville, Florida. Upon request an application blank will be forwarded to any address.

The names and addresses of those who enrolled for all correspondence courses in Agriculture from March 1, 1911, to April 1, 1912, are given on pages 203 to 207.

AGRICULTURAL EXPERIMENT STATION

STAFF

A. A. MURPHREE, LL.D.,
President of the University.

P. H. ROLFS, M.S.,
Director.

JOHN M. SCOTT, B.S.,
Animal Industrialist and Assistant Director.

B. F. FLOYD, A.M.,
Plant Physiologist.

J. R. WATSON, A.M.,
Entomologist.

H. E. STEVENS, M.S.,
Plant Pathologist.

S. E. COLLISON, M.S.,
Associate Chemist in Charge.

JOHN BELLING, B.Sc.,
Assistant Botanist and Editor.

O. F. BURGER, M.S.,
Assistant Plant Pathologist.

S. S. WALKER, M.S.,
Assistant Chemist.

JOHN SCHNABEL,
Assistant Horticulturist.

U. C. LOFTIN, B.S.,
Laboratory Assistant in Entomology.

J. B. GRIFFITH, B.S.,
Laboratory Assistant in Plant Pathology.

F. M. O'BYRNE, A.B.,
Laboratory Assistant in Plant Physiology.

Object.—The Agricultural Experiment Station is an institution founded by Congressional Act. The object of the Experiment Station is to acquire and diffuse useful agricultural knowledge. From the enacting clause, it is very clear that the intention of Congress was to establish with every agricultural college and university receiving the benefits of the original land-grant Act, an institution for purely investigational work. The Florida Experiment Station was founded in 1888, and has continued without interruption since that time Since the funds are received from a Federal source, it becomes necessary to comply with the requirements of the Federal law to be able to receive the benefits of this fund It should therefore be clearly understood that the Experiment Station fund is not intended, directly or indirectly, for teaching purposes, but for the purpose of acquiring new and important knowledge in regard to agricultural crops or agricultural soils. In order to receive the benefits of the Adams fund, it becomes necessary to plan the experiments and submit them to the Department of Agriculture at Washington for approval before any of the moneys are spent in the investigations.

Publications—The publications of the Experiment Station are restricted to a report of the work done by members of the Experiment Station Staff The printing of compilations and information of a general nature is not permissible under the funds.

We have three series of publications:

The Experiment Station Bulletins, each of which represents a more or less complete thesis on some particular line of work directly connected with the agriculture or horticulture of the State. In this series, 106 bulletins have been published. These are divided about equally between agriculture and horticulture. These bulletins must be issued as often as once in three months, and as many more as may be thought advisable.

Press Bulletins are issued at short intervals, usually only a week elapsing between the different numbers. As the name indicates, these bulletins are prepared especially for the newspapers of the State. They announce new and important discoveries, and give other information directly connected with the activities of the Experiment Station that is known to be of immediate importance to the agricultural and horticultural people of the State. One hundred and sixty-five of these have been issued.

Reports to the Governor and to the Department of Agriculture are required annually. These contain a financial statement of the distribution of the funds of the year before; also a brief résumé of the work done by the Experiment Station as a whole, and by the various departments in detail. In addition to these brief reports, brief technical papers are also published in these annual reports, especially such results as come to hand and are not thought of sufficient importance to be printed as a bulletin. Twenty-two annual reports have been issued.

Over a million pieces of mail matter have been distributed under the Experiment Station frank.

Lines of Investigation.—The work of the Florida Experiment Station is not sharply divided as to the different departments. The workers in the Experiment Station formulate what are known as projects. In these projects the work is carried out to the ultimate limits of the ability of the worker and the resources of the institution. A piece of investigation, once begun, is continued regardless as to whether its ramifications take it into one department or another. Not infrequently two or more departments are concerned in the solving of one project. Naturally, the lines of investigation fall into several departments: Horticulture, including plant breeding, plant introdution, propagation, etc.; Animal Industry, including the study of feed crops, the effect of feeding certain crops to cattle and hogs, and the growing of feed and forage crops; Agronomy, including the breeding of cotton, corn, and other farm crops; Plant Pathology, including the study of plant diseases produced by fungi and bacteria; Plant Physiology, including the study of plants as affected by fertilizer and soil conditions; Chemistry, including the study of fertilizers and soils, especially as to the effect on plants; Entomology, including the study of insecticides, insects, and their parasites.

Resources.—The resources of the Experiment Station up to the present have been limited to the funds received from the Federal Government. The Hatch fund became available in 1888, from which $15,000 has been received annually. In 1906 a further appropriation of $5,000 became available from the Adams fund. This fund increased by $2,000 annually, until it has now reached its limit of $15,000, making a total annual income to the Experiment Station of $30,000. Only five per cent of this fund

can be used for building purposes and that only when the experiments require this to be done. None of the money can be used directly or indirectly for teaching purposes or for paying for holding Farmers' Institutes. The Experiment Station has been in the present location since January 1, 1907. Since that time the laboratories have had to be established in the new location, the fields for agricultural and horticultural work have had to be put into proper shape for experimentation, and other material has had to be collected.

New Laboratory Building.—The Legislature of 1907 appropriated $40,000 for the construction of a suitable laboratory building. This building was completed during the summer of 1910 and occupied during August. This handsome building affords suitable laboratories and offices for the staff of the Experiment Station and Extension Division. It is a three-story brick structure, containing about 18,000 square feet of floor space. This addition to our equipment is of great advantage to the State, since it increases the efficiency of all of our workers—some to the extent of fifty per cent.

Advantages.—The advantages of having the Experiment Station located with the University can not be easily over-estimated. The fields and orchards used for experiment work are open to the inspection of students and visitors. An experiment field is very different from a demonstration field, inasmuch as no attempt is made to produce show crops or to do those things that a farmer can readily do for himself, but to discover unknown facts. The laboratories of the Experiment Station are planned and conducted for purely investigational work. This permits the student to observe and study the investigational laboratories, and those who have special inclinations in the direction of the lines of investigation carried on have an opportunity to do some work in connection with the specialists.

The investigators in the Experiment Station at frequent intervals deliver popular and technical lectures either to the student-body as a whole or to special clubs and local organizations. This gives to the students an opportunity of listening to lectures of a more advanced nature in particular lines of investigation.

Minor positions, such as those of laboratory assistants in the Experiment Station, are open from time to time, and whenever

practicable are given to graduates of the University who manifest ability in the special line of investigation. These laboratory assistants are paid a small salary for half of their time, and during the other half of their time they are free to take such studies in the University as will be of material advantage to them along the special line they wish to pursue.

Some of the more important projects as outlined for the Experiment Station work are as follows:

1. The comparison of the Florida velvet bean with bran, silage, and other feeds for milk production.

2. The comparison of home-grown roughage with the ordinary commercial roughage for producing milk.

3. The determination of the value of Florida-grown feeds for beef production.

4. The determination of the value of Florida-grown feeds for pork production.

5. The breeding of a thoroughbred long-staple cotton that will meet the requirements of the average market.

6. The breeding of legumes for larger crop production under Florida conditions, especially the Lyon and velvet beans, and cowpeas.

7. Corn breeding, with a view of getting thoroughbred varieties that will produce true to type and produce larger yields.

8. The growing and breeding of citrus hybrids.

9. The citrus orchard, which ultimately should include all of the earlier and more hardy varieties of citrus fruits.

10. A vegetable garden in which tests are made of various vegetables, and breeding work conducted for the production of disease-resistant varieties.

11. Hardy fruit orchard in which occur new and promising but hitherto untested fruits.

12. Plant-testing plots. In this project occur over five hundred numbers of varieties of various kinds of economic plants that have not heretofore been tested in Florida. The seeds are obtained from all parts of the world, selections being made from those regions that are similar in climate to Florida.

13. The growing of forage crops useful for horse, cattle, and swine.

14. The making of a permanent pasture.

15. Soil and fertilizer studies. These include (a) a determination of the effect of certain combinations of fertilizing materials upon the pineapple plant as affecting the chemical composition of the plants and fruits, and physiological effects on the plants; (b) the effect of quantity and kind of chemicals applied to citrus trees; that is, their effect upon the composition of the leaves, wood, and fruit, and the physiological effect on the plants; (c) the effect of these same chemicals upon the soil to which they are applied; the loss of the plant-food, either through leaching, or by escaping as gaseous ammonia, or nitrogen.

16. Citrus diseases. This includes a technical study of diseases that have hitherto caused a great deal of loss in the citrus orchard, but have never been worked up from a technical standpoint, such as scaly bark, gumming, buck-skimming, stem-end rot, etc.

17. Citrus whitefly. This investigation consists in the study of the two principal species of whitefly that are pests in the citrus orchard; a study of

the life histories, with a view of finding out the most vulnerable points at which they can be attacked; and a study of the natural enemies, together with a study of the best artificial means of controlling the pests.

18. Nutrition and mal-nutrition studies. This includes a study of plant foods, especially in their relation to citrus, and also a study of disorders that are apparently due to unfavorable soil or fertilizer conditions.

REGISTER

DEGREES, HONORS AND MEDALS

1910-1911

DEGREES IN COURSE

Master of Science.

Burger, O. F.	Plant Pathology	Gainesville, Fla.

Bachelor of Arts.

Hilton, W. B.	Education	Philadelphia, Pa.
Langston, B. G.	Sociology	Chipley, Fla.
Macy, E. E.	Education	Eau Gallie, Fla.
May, P. S.	Sociology	Quincy, Fla.
Sealey, R. M.	Education	Live Oak, Fla.
Shands, J. W.	Sociology	Gainesville, Fla.

Bachelor of Science.

Christian, W. E.	General Science	McIntosh, Fla.
Drane, O. W.	Electrical Engineering	Lakeland, Fla.
Frei, F. J.	Electrical Engineering	Archer, Fla.
Howard, G. L.	General Science	Madison, Fla.
Hunter, J. P.	Civil Engineering	Largo, Fla.
King, R. L.	Agriculture	Columbia, Ala.
Overman, C. H.	Civil Engineering	Pensacola, Fla.
Perry, D. S.	Civil Engineering	Gainesville, Fla.
Soar, I. E.	Agriculture	Dade City, Fla.

Bachelor of Laws.

Carter, S. L., Jr.	Gainesville, Fla.
Crews, A. S.	Starke, Fla.
Crocker, O.	Vernon, Fla.
Epperson, C. C.	Williston, Fla.
Green, F.	Bushnell, Fla.
Huffaker, R. B.	Bartow, Fla.
Johnston, R. G.	Kissimmee, Fla.
Lester, J. L.	Key West, Fla.
Osborne, H. P.	Jacksonville, Fla.
Rivers, C. O.	Lake City, Fla.
Roland, A. M.	Live Oak, Fla.
Stewart, C. Q.	Ft. Myers, Fla.
Surrency, W. H.	Jacksonville, Fla.
Wade, L. E.	Jacksonville, Fla.

MEDALS

Senior Oratorical Medal	B. G. Langston.
Junior Oratorical Medal	T. W. Bryant.
Declaimer's Medal	R. R. Taylor.
Buckman Medal	C. H. Overman.
U. D. C. Medal	L. Mershon.
Marksman's Medals:	
First	R. K. Mixon.
Second	T. D. Felton.

ROLL OF STUDENTS

1911-1912

GRADUATE SCHOOL

Name.	*Postoffice.*	*State or County.*
Burger, O. F	Noblesville	Indiana.
Floyd, B. F	Gainesville	Alachua.
Griffith, J. B	Citra	Marion.
Loftin, U. C	West Raleigh	North Carolina.
Macy, E. E	Eau Gallie	Brevard.
O'Byrne, F. M	Oxford	Ohio.

COLLEGE OF ARTS AND SCIENCES

SENIOR CLASS

Bryant, T. W	Lakeland	Polk.
Davis, A. G	Chipley	Washington.
Grace, G. J	Graceville	Jackson.
Jacobson, J. E	Jacksonville	Duval.
Kime, C. D	Atlanta	Georgia.
Miller, O. S	Folkston	Georgia.
Perkins, L. A., Jr	Tallahassee	Leon.
Shackleford, R. W	Tallahassee	Leon.

JUNIOR CLASS

Barrs, N	Gainesville	Alachua.
Blanton, R. S	Plant City	Hillsboro.
Buie, A. P	Bell	LaFayette.
Casler, E. T	Jacksonville	Duval.
Douglass, R. C	Pensacola	Escambia.
Elliott, W. G	Tampa	Hillsboro.
Henderson, C. W	Tampa	Hillsboro.
Henderson, R. P	Tampa	Hillsboro.
Jarrell, R. L	Kissimmee	Osceola.
Laffitte, L. S	Lloyd	Jefferson.
Leitner, S	Arcadia	DeSoto.
Morgan, L. R	Arcadia	DeSoto.
Taylor, R. R., Jr	Miami	Dade.
White, R. R	Starke	Bradford.
Wilson, R. B	Bartow	Polk.

SOPHOMORE CLASS

Bird, T. B	Monticello	Jefferson.
Coarsey, J. M	Tampa	Hillsboro.
Cuscaden, A. W., Jr	Tampa	Hillsboro.
Farr, J. W	Wauchula	DeSoto.
Goulding, R. L	Pensacola	Escambia.
Hearin, J. L	Quincy	Gadsden.

Name.	*Postoffice.*	*State or County.*
Knowles, J. H.	White Springs	Hamilton.
Mills, W. M.	Live Oak	Suwannee.
Reynolds, W. H.	Lakeland	Polk.
Swanson, T. J.	Gainesville	Alachua.
Tanner, E. B.	Winter Garden	Orange.
Tolman, L. B.	Bangor	Maine.
Traxler, E. S.	Alachua	Alachua.
Traxler, L. W.	Alachua	Alachua.
Walker, R. N.	Auburndale	Polk.
Watkins, J. B.	Micanopy	Alachua.
Williams, J. E.	Haskell	Polk.
Williams, O. E.	Haskell	Polk.

FRESHMAN CLASS

Brown, M. F.	Lawtey	Bradford.
Campbell, A. D.	Chipley	Washington.
Chesnut, J. G.	Gainesville	Alachua.
Deen, T. B.	Gainesville	Alachua.
DeWolf, D. L.	Crescent City	Putnam.
Enneis, W. H	Jacksonville	Duval.
Hancock, A. R.	Tallahassee	Leon.
Harris, S. H.	St. Petersburg	Pinellas.
Hartsfield, J. E.	Gainesville	Alachua.
Holmes, H. C.	Tampa	Hillsboro.
Horton, H. M.	Fort Pierce	St. Lucie.
Kilgore, F. A.	Orlando	Orange.
Knowles, G. B.	Greenwood	Jackson.
McElya, N.	Gasparilla	DeSoto.
McIntosh, S. F.	Brooksville	Hernando.
Mason, F. R.	Macclenny	Baker.
Neal, S. J., Jr.	Meredith	Levy.
Owens, F. E.	Eustis	Lake.
Palmer, C. B.	Tallahassee	Leon.
Parazine, W. L.	Pensacola	Escambia.
Poppell, T. J.	New River	Bradford.
Powers, E. R.	Bristol	Tennessee.
Riley, E. L.	Jacksonville	Duval.
Sutherland, W. A.	Jacksonville	Duval.
Taylor, W. H., Jr.	Greenwood	Jackson.
Wahnish, S. A.	Tallahassee	Leon.
Yarbrough, T. T.	Miccosukee	Leon.

SPECIAL

Blackwelder, J. J.	Lake Butler	Bradford.
Gwynn, C. B., Jr.	Tallahassee	Leon.
Magaha, E. M.	Jay	Santa Rosa.
Mobley, Paul	Punta Gorda	DeSoto.
Nottingham, W. F.	Palatka	Putnam.
Price, T. E.	Marianna	Jackson.
Turbeville, G. H.	Meredith	Levy.
Welch, C. L.	Tampa	Hillsboro.
Wynn, W. H.	Marianna	Jackson.

COLLEGE OF AGRICULTURE

SENIOR CLASS

Baker, A. A.	Thonotasassa	Hillsboro.

JUNIOR CLASS

Name.	*Postoffice.*	*State or County.*
Davis, F. G.	Ocklocknee	Leon.
Schlegel, Carl	Fort McCoy	Marion.

SOPHOMORE CLASS

Badger, D. M.	Minneapolis	Minnesota.
Clayton, H. G.	Tampa	Hillsboro.
Conant, H. G.	Minneapolis	Minnesota.
Gist, J. F.	McIntosh	Marion.
Grace, J. T.	Graceville	Jackson.
Gwynn, H. W.	Tallahassee	Leon.
Houghtaling, H. C.	New York	New York.
Howell, C. L.	Jacksonville	Duval.
Martini, C. A.	VanWert	Ohio.
Miller, J. A.	Independence	Missouri.
Morgan, E. L.	Arcadia	DeSoto.
Shaw, A. G.	Tampa	Hillsboro.
Springer, J. R.	Pitman	New Jersey.
Sutton, J. B.	Lakeland	Polk.
Swartz, H. V.	New York	New York.
Williams, R. J.	Gainesville	Alachua.
Wilson, G. H.	Gainesville	Alachua.
Zetrouer, A. J.	Rochelle	Alachua.

FRESHMAN CLASS

Bryan, H. G.	Greenwood	Jackson.
DesPrez, W. S.	Florence	Alabama.
Harris, J. H.	Orlando	Orange.
McDowall, C. D.	Gainesville	Alachua.
Livingstone, J. S.	Boston	Massachusetts.
Tucker, J. R.	Gainesville	Alachua.

TWO YEARS' COURSE

Allen, A. E.	Lecanto	Citrus.
Halma, Fred	Gainesville	Alachua.
Hart, P. I.	Fort Pierce	St. Lucie.
Helseth, C. E.	Viking	St. Lucie.
Huelsbeck, G. J.	Isle of Pines	West Indies.
Jones, K. D.	Tampa	Hillsboro.
King, Bennett	Lecanto	Citrus.
Means, D. L.	Fort White	Columbia.
Nieland, L. T.	St. John's Park	St. Johns.
Nixon, L.	Mt. Pleasant	Gadsden.
Poague, W. B.	Palatka	Putnam.
Swartz, C. R.	DesMoines	Iowa.
Thompson, R. R.	Oneco	Manatee.
Webb, Q. C.	Cantonment	Escambia.

FOUR WEEKS' COURSE

Campbell, L. M.	Alachua	Alachua.
Cowen, E. J.	River Junction	Gadsden.
Dover, Felix.	Hampton	Bradford.
Futch, L. H.	Raiford	Bradford.
Mayer, L. L.	Chicago	Illinois.
Mizell, J. P.	Dukes	Bradford.

Name.	*Postoffice.*	*State or County.*
Nelson, W. K.	San Antonio	Pasco.
Norman, H. W.	Lawtey	Bradford.
Paint, Louis	Sanford	Orange.
Roux, L. T.	Gainesville	Alachua.
Reeves, Chas. M.	Evinston	Alachua.
Shaw, E. J.	Brooker	Bradford.
Schefcik, Joseph	Little River	Dade.
Skinner, L. C.	Miami	Dade.
Smith, C. T.	Vincent	Ohio.
Smith, W. G.	Arcadia	DeSoto.
Taylor, Henry	Raiford	Bradford.
Williams, J. E.	Worthington	Alachua.

SPECIAL

Allen, E. J.	Lecanto	Citrus.
Cannon, E. F.	Gainesville	Alachua.
Hatzian, A. A.	Arabkir	Turkey.
Rowell, A. C.	Fort Pierce	St. Lucie.
Williams, A. J.	Alachua	Alachua.

COLLEGE OF ENGINEERING

SENIOR CLASS

Bamberg, C. S.	Jasper	Hamilton.
Brassell, C. J.	Tampa	Hillsboro.
Felton, T. D.	Oldtown	LaFayette.
Storter, N. S.	Everglade	Lee.
Thomas, D. F.	Gainesville	Alachua.

JUNIOR CLASS

Howze, J. A.	Palmetto	Manatee.
Macintosh, S	London	England.
Rowlett, C. A.	Palmetto	Manatee.
Shands, A. G.	Gainesville	Alachua.
Tenney, L. E.	Federal Point	St. Johns.
Thrasher, L. B.	Micanopy	Alachua.
Vidal, A.	Gainesville	Alachua.

SOPHOMORE CLASS

Becker, N. A.	Gainesville	Alachua.
Bennett, J. J.	Gainesville	Alachua.
Blount, U.	Lakeland	Polk.
Booth, A. E.	Cocoa	Brevard.
Cappleman, H. L.	Ocala	Marion.
Crom, G. C., Jr.	Gainesville	Alachua.
Crom, W. H.	Gainesville	Alachua.
DeWinkeler, A.	Arch Creek	Dade.
Hill, F. W. L.	Narcoossee	Osceola.
LaRoche, C. C.	Cocoa	Brevard.
McNeill, M. C.	Tallahassee	Leon.
Price, J. C.	Warrenton	North Carolina.
Rader, P. C.	Miami	Dade.
Rush, H. L.	Greenville	Ohio.
Swanson, F. M.	Gainesville	Alachua.
Tinny, J. C.	Tampa	Hillsboro.
White, D. L.	Citra	Marion.

FRESHMAN CLASS

Name.	*Postoffice.*	*State or County.*
Armstrong, J. B	Terra Ceia	Manatee.
Bailey, U. C	Gainesville	Alachua.
Collins, M. C	Tallahassee	Leon.
Davidson, F. T	Meredith	Levy.
Dow, L. M	St. Petersburg	Pinellas.
Freeman, H	Starke	Bradford.
Grainger, M. W	McIntosh	Marion.
Hallowes, J. P	Green Cove Springs	Clay.
Hatch, W. O	Oak Hill	Volusia.
Joyner, R. L	Gainesville	Alachua.
Lacey, C. C	Sarasota	Manatee.
Murrell, K. R	Sanford	Orange.
Peacock, A. J	Bronson	Levy.
Ricou, E. L	Jensen	St. Lucie.
Roberts, J. B	White Springs	Hamilton.
Sleight, G. N., Jr	Ironwood	Michigan.
Thalimer, H. A	DeFuniak Springs	Walton.
Ward, C. T	Floral City	Citrus.
Ward, S. R	Brooker	Bradford.

SPECIAL

Cox, H. W	Gainesville	Alachua.
Criglar, W. J	Wilma	Liberty.
Horton, M. G	Bradentown	Manatee.
Parham, W. C	Gainesville	Alachua.
Pounds, H	Ocoee	Orange.
Read, C. H. W	Cedar Keys	Levy.
Riggins, L. W	Lakeland	Polk.
Simpson, C. C	Gainesville	Alachua.
Taylor, E. A	Gainesville	Alachua.

COLLEGE OF LAW

SENIOR CLASS

Bowers, R. D	Gainesville	Alachua.
Buie, D. M	Bell	LaFayette.
Cason, F. W (B.S.) (Southern College.)	Tampa	Hillsboro.
Donnell, E. B. (A.B.) (Peabody College.)	Baton Rouge	Louisiana.
Fields, W. P	Hosford	Liberty.
Ferrell, H. A	Apalachicola	Franklin.
Godwin, J. L	Lyons	Georgia.
Harrison, W. T	Parrish	Manatee.
Keen, S. S	Lake City	Columbia.
King, R	Jacksonville	Duval.
Mershon, M. L	Gainesville	Alachua.
Moon, C. M	Kissimmee	Osceola.
McMullen, M. A	Largo	Pinellas.
O'Berry, M. L	Kissimmee	Osceola.
Philips, A. E. (A.B.) (University of Tennessee.)	Fernandina	Nassau.
Price, W. C	Marianna	Jackson.
Randell, R. W	Madison	Madison.
Trantham, T. S	Camden	South Carolina.
Walker, W. S	Jacksonville	Duval.

JUNIOR CLASS

Name.	*Postoffice.*	*State or County.*
Bennett, A. C	Gainesville	Alachua.
Black, L. W	Grandin	Putnam.
Brooks, A. C	Lake Butler	Bradford.
Bullock, J. R	Ocala	Marion.
Christie, W. McL	Jacksonville	Duval.
Clayton, O. J	Aucilla	Jefferson.
Coleman, H. K	Tampa	Hillsboro.
Cox, B. A	Vernon	Washington.
Crum, L. D	Trilby	Pasco.
Diamond, C. P	Cora	Santa Rosa.
Florence, J. W	Pensacola	Escambia.
Futch, Eli	Gainesville	Alachua.
Garrett, G. P	Kissimmee	Osceola.
Gibson, J. B., Jr	River View	Hillsboro.
Hocker, F. R	Ocala	Marion.
Household, E. F	Plant City	Hillsboro.
Kennedy, W. M	Umatilla	Lake.
Langston, B. G. (A.B.) (University of Florida.)	Chipley	Washington.
Lawler, S. W., Jr	Bartow	Polk.
Lischkoff, L. N	Pensacola	Escambia.
McCaskill, J. M	Sanford	Orange.
Miller, O. S	Folkston	Georgia.
Mobley, Paul	Punta Gorda	DeSoto.
Phipps, C. M. (A.B.) (University of Mississippi.)	Terra Ceia	Manatee.
Riherd, F	Glasgow Junction	Kentucky.
Welch, C. L	Tampa	Hillsboro.
Wood, H. W	Arcadia	DeSoto.

SPECIAL

Alderman, T. J	Starke	Bradford.
Blackwelder, J. J	Lake Butler	Bradford.
DeVane, E. C	Plant City	Hillsboro.
Graham, K. H	Gainesville	Alachua.
Magaha, E. M	Jay	Santa Rosa.
Mathis, B. V	Ponce de Leon	Holmes.
Shoemaker, J	Gainesville	Alachua.

TEACHERS' COLLEGE AND NORMAL SCHOOL

Blackburn, L. L	Bowling Green	DeSoto.
Blanton, R. S	Plant City	Hillsboro.
Cogburn, H. P	Cottondale	Jackson.
Colson, A. L	Bell	LaFayette.
Cook, F. R	Grandin	Putnam.
Crews, H	Zolfo	DeSoto.
Grace, G. J	Graceville	Jackson.
Goulding, R. L	Pensacola	Escambia.
Hayes, Otto	Orlando	Orange.
Jenkins, E. A	Grand Ridge	Jackson.
Knowles, G. B	Greenwood	Jackson.
Kynes, James	Kynesville	Walton.
Malphurs, J. H	Hague	Alachua.
Mason, F. R	Macclenny	Baker.
Mathis, Addis	Ponce de Leon	Homes.
Poppell, T. J	New River	Bradford.
Smith, H. C	Sumterville	Sumter.
Surrency, A. P	Chicora	Polk.
Syfret, J. M	Sexton	Washington.
Wolfe, S. A	Jay	Santa Rosa.

SUBFRESHMAN CLASS

Name.	*Postoffice.*	*State or County.*
Allsopp, W. V.	Weirsdale	Marion.
Bishop, B. O.	Alachua	Alachua.
Bishop, R. M.	Greenville	Madison.
Blount, B. B., Jr.	Carrabelle	Franklin.
Borland, N. T.	Floral City	Citrus.
Brannon, E. M.	Ocoee	Orange.
Chambers, W. B.	Tampa	Hillsboro.
Cone, A. J.	Raleigh	Levy.
Evans, J. C., Jr.	Gainesville	Alachua.
Harrison, J. K., Jr.	Williston	Levy.
Hatcher, W. M.	Worthington	Alachua.
Hawthorne, T. C.	Ocoee	Orange.
Heagy, W. P.	Gainesville	Alachua.
Herndon, O. P.	Sanford	Orange.
Hester, H. S.	Tampa	Hillsboro.
Howell, P. B.	Downing	LaFayette.
Lacey, F. T.	Sarasota	Manatee.
Lang, W. S., Jr.	Gainesville	Alachua.
Little, J. P.	Lukens	Levy.
McCall, T. E.	Jasper	Hamilton.
McKay, J. A.	Tampa	Hillsboro.
Mitchell, C. M.	Jasper	Hamilton.
Mitchell, J. W.	Jasper	Hamilton.
Moseley, G. R.	Gainesville	Alachua.
Parker, J. P.	LaCrosse	Alachua.
Powell, A. G.	Herndon	Pasco.
Register, I. L.	Plant City	Hillsboro.
Rice, I. A.	Umatilla	Lake.
Ricou, I. L.	Stuart	Palm Beach.
Robinson, S. J.	Lady Lake	Lake.
Sikes, J. F.	Punta Gorda	DeSoto.
Spencer, L. P.	West Palm Beach	Palm Beach.
Stripling, A. E.	Westville	Homes.
Ward, J. J.	Lulu	Columbia.
Weedon, F. R.	Tampa	Hillsboro.
Wilson, C. L., Jr.	Marianna	Jackson.

SUMMARY

Graduate School	6
College of Arts and Sciences	77
College of Agriculture	64
College of Engineering	57
College of Law	53
Teachers' College and Normal School	20
	—277
Subfreshman Class	36
Total	313
Counted twice	11
Net Total	302

SUMMARY BY COUNTIES

Alachua	50
Baker	1
Bradford	14
Brevard	3
Citrus	5
Clay	1
Columbia	3
Dade	5
DeSoto	12
Duval	9
Escambia	6
Franklin	2
Gadsden	3
Hamilton	6
Hernando	1
Hillsboro	24
Holmes	3
Jackson	11
Jefferson	3
LaFayette	5
Lake	4
Lee	1
Leon	11
Levy	8
Liberty	2
Madison	2
Manatee	9
Marion	9
Nassau	1
Orange	11
Osceola	5
Palm Beach	2
Pasco	2
Pinellas	3
Polk	11
Putnam	5
St. Johns	2
St. Lucie	5
Santa Rosa	4
Sumter	1
Suwannee	1
Volusia	1
Walton	2
Washington	5

Florida	274
Other States and countries	28
Total	302

SUMMARY BY STATES AND COUNTRIES

Alabama	1
Georgia	4
England	1
Illinois	1
Indiana	1
Iowa	1
Kentucky	1
Louisiana	1
Maine	1
Massachusetts	1
Minnesota	2
Missouri	1
Michigan	1
New Jersey	1
New York	2
North Carolina	2
Ohio	3
South Carolina	1
Tennessee	1
Turkey	1
Florida	274
Total	302

ALUMNI ASSOCIATION

President—B. R. Colson, Gainesville, Fla.
Vice-President—A. S. Miller, Lake City, Fla.
Secretary and Treasurer—J. W. Blanding, Gainesville, Fla.

At the close of the commencement exercises in 1906 the graduates of that year organized the Alumni Association.

All graduates of the Institution *and those graduates of the former State institutions who have their diplomas confirmed by the University* are eligible to membership in the Association; and the example of the first class in joining in a body should be followed by all succeeding classes. Information concerning the Association may be had by addressing any of the above officers.

1906

Blanton, R. S.....L. I.
Student, University of Florida.
Davis, D. D.....L. I.
Principal Lawtey High School, Lawtey, Fla.
Evans, A. C.....B.A.
Lieutenant, U. S. A.
Evans, R. J.....B.A.
Physician, Jacksonville, Fla.
Ferran, C. H.....M.A.
Pastor of Presbyterian Church, DeLand, Fla.
Floyd, W. L.....M.S.
Professor of Botany and Horticulture, University of Florida, Gainesville, Fla.
Greene, E. P.....B.S.
Stock Feed Chemist, State Department of Agriculture, Tallahassee, Fla.
Henry, A. M.....B.S.
Food and Drug Chemist, State Department of Agriculture, Tallahassee, Fla.
Jenkins, I. C.....M.A.
Pastor Methodist Church, Lakeland, Fla.
Miller, J. B.....L.I.
Munsell, W. A.....B.S.
Veterinary Student, Cornell University, Ithaca, N. Y.
Rivers, C. O.....B.S.
Lawyer, Lake City, Fla.
Rowlett, W. M., Jr.....B.S.
Physician, Tampa, Fla.
Weller, Frank.....B.S.
Civil Engineer, West Palm Beach, Fla.
Woodberry, H. S.....B.A.
Medical Student, University of Virginia, Charlottesville, Va.

1907

Gunter, Herman.....B.S.
Assistant State Geologist, Tallahassee, Fla.
Moreman, M. L.....B.S.
Lawyer, Jacksonville, Fla.
Nielsen, A. R.....B.S.
Veterinary Surgeon, Lehigh, Iowa.
Tompkins, C. A.....B.S.
Jeweler, Lake City, Fla.

1908

Fawcett, H. S.....M.S.
Plant Pathologist, State Commission of Horticulture, Sacramento, Cal.
Cason, T. Z.....B.S.
Medical Student, University of Georgia, Athens, Ga.
Carter, P. J.....B.S.
Medical Student, Tulane University, New Orleans, La.
Earman, J. B.....B.S.
Fisher, C. M.....B.S.
Second Lieutenant, Philippine Constabulary, P. I.
Gammon, J. E.....B.S.
Persons, R. F.....A.B.
Southern Weighing Bureau, Jacksonville, Fla.
Shands, J. S.....B.A.
Secretary and Treasurer Gainesville Hardware Co.

1909

Ames, G. B.....B.S.E.E.
Electrical Engineer, Southern Engineering Co., Jacksonville, Fla.
Chapin, R. S.....B.S.E.E.
Third Lieutenant, Philippine Constabulary.
Gibbs, W. W.....B.S.C.E.
Civil Engineer, Nichols, Fla.
Kay, Raymond.....B.A.
Law Student, Harvard University.
Larson, Charles.....B.S.E.E.
Florida Electric Co., Jacksonville, Fla.
Martin, W. B.....B.A.
Taylor, A. H.....B.S.E.E.
Scientific Assistant, Bureau of Standards, Washington, D. C.
Wilson, F. T.....B.S.
Assistant in Agriculture, Maryland Agricultural College.
Wilson, R. N.....M.S.
Professor of Chemistry, Trinity College, Durham, N. C.
Winters, R. Y.....M.S.
Graduate Student, Cornell University.

1910

Barco, E. T.....A.B.
Lieutenant, Constabulary, Philippine Islands.

Calhoun, E. C.....LL.B.
Lawyer, Perry, Fla.
Cappleman, D. E.....A.B.
Lieutenant, Constabulary, Philippine Islands.
Hardee, L. P.....LL.B.
Lawyer, Gainesville, Fla.
Helm, Roy.....A.B.
Rhodes Scholar, Oxford University, England.
McMillan, J. C.....B.S.
Lieutenant, Constabulary, Philippine Islands.
Rader, R. D.....B.S.C.E.
Lieutenant, Constabulary, Philippine Islands.
Small, C. C.....LL.B.
Lawyer, Lake City, Fla.
Steffee, J. B.....B.S.
Lietuenant, Constabulary, Philippine Islands.
Thompson, H. L.....B.S.C.E.
Civil Engineer, Nichols, Fla.

1911

Burger, O. F.....M.S.
Assistant Plant Pathologist, Experiment Station, University of Florida, Gainesville, Fla.
Carter, S. L., Jr.....LL.B.
Lawyer, Gainesville, Fla.
Christian, W. E.....B.S.
Merchant, McIntosh, Fla.
Crews, A. S.....LL.B.
Lawyer, Starke, Fla.
Crocker, O.....LL.B.
Lawyer, Vernon, Fla.
Drane, O. W.....B.S.E.E.
Engineer, Lakeland, Fla.
Epperson, C. C.....LL.B.
Lawyer, Williston, Fla.
Frei, F. J.....B.S.E.E.
Apprentice, General Electric Co., West Lynn, Mass.
Green, F.....LL.B.
Lawyer, Bushnell, Fla.
Hilton, W. B.....A.B. in Education.
Kissimmee, Fla.
Howard, G. L.....B.S.
Merchant, Madison, Fla.
Huffaker, R. B.....LL.B.
Lawyer, Bartow, Fla.
Hunter, J. P.....B.S.C.E.
Civil Engineer, West Palm Beach, Fla.
Johnston, R. G.....LL.B.
Lawyer, Kissimmee, Fla.
King, R. L.....B.S.A.
Agriculturalist, Columbia, Ala.
Langston, B. G.....A.B.
Law Student, University of Florida.
Lester, J. L.....LL.B.
Lawyer, Key West, Fla.
Macy, E. E.....A.B. in Education.
Graduate Student, University of Florida.

May, P. S.....A.B.
Business Student, Jacksonville, Fla.
Osborne, H. P.....LL.B.
Lawyer, Jacksonville, Fla.
Overman, C. H.....B.S.C.E.
Railroad Civil Engineer, Penascola, Fla.
Perry, D. S.....B.S.C.E.
Civil Engineer, Leesburg, Fla.
Roland, A. M.....LL.B.
Lawyer, Live Oak, Fla.
Sealey, R. M.....A.B. in Education.
Principal High School, Ft. Myers, Fla.
Shands, J. W.....A.B.
Student, Columbia University, N. Y.
Soar, I. E.....B.S.A.
County Demonstrator, Dade City, Fla.
Stewart, C. Q.....LL.B.
Lawyer, Ft. Myers, Fla.
Surrency, W. H.....LL.B.
Lawyer, Jacksonville, Fla.
Wade, L. E.....LL.B.
Lawyer, Jacksonville, Fla.

The following graduates of former State institutions have had their diplomas confirmed by the University and are members of the Association:*

EAST FLORIDA SEMINARY

Arnold, Robertson T.....Jacksonville, Fla.
Barco, Dwight N.....Arcadia, Fla.
Baxter, Estes George.....Washington, D. C.
Blanding, A. H.....Juliette, Fla.
Blanding, John W.....Gainesville, Fla.
Burnette, J. Fletcher.....Gainesville, Fla.
Byles, George A.....Windsor, Fla.
Campbell, Thomas S.....Brazil, Indiana.
Cornwell, Arthur T. (Rev.).....Bradentown, Fla.
Dutton, Henry F.....Gainesville, Fla.
Evins, Rob C.....McIntosh, Fla.
Graham, A.....Gainesville, Fla.
Grether, Ralph D.....Jacksonville, Fla.
Herzog, Alva L.....Savannah, Georgia.
Hill, Sumter B.....Maitland, Fla.
Huffman, Roy E.....Gainesville, Fla.
Ingersoll, Robert N.....Springfield, Mass.
Jacobie, Ollie M.....Tallahassee, Fla.
Jones, William A.....Lawtey, Fla.
Lovell, C. P. (Col.).....Jacksonville, Fla.
Lykes, F. E.....Havana, Cuba.
Lynch, Chas. M.....Birmingham, Ala.
Maas, Solomon.....Tampa, Fla.
Merchant, James R.....Gainesville, Fla.
Merchant, Thomas C.....Gainesville, Fla.

*It has not been possible to make this list complete. The University will be glad to be informed of omissions.

Milam, B. R. ..... Jacksonville, Fla.
Moore, Samuel W. ..... Brazil, Indiana.
Person, Weldon E. (Dr.) ..... Atlanta, Georgia.
Richard, H. C. ..... Starke, Fla.
Roux, Fred S. ..... Williston, Fla.
Shaylor, J. Douglas ..... Jacksonville, Fla.
Shaylor, Samuel T. ..... Jacksonville, Fla.
Stillman, John E. ..... Pensacola, Fla.
Thomas, S. J. ..... Denver, Colorado.
Venable, V. D. ..... Farmville, Virginia.
West, Byron McG. ..... Jacksonville, Fla.
Whitaker, Charles C. ..... Tampa, Fla.
Whitney, William T. ..... Plant City, Fla.
Zewadski, William K., Jr. ..... Ocala, Fla.

FLORIDA STATE COLLEGE AND THE SEMINARY WEST OF THE SUWANNEE RIVER

Belcher, Burton ..... St. Petersburg, Fla.
Buchholz, Frederick William ..... Tampa, Fla.
*Clark, Asa B. ..... Quincy, Fla.
Cook, David M. ..... Tampa, Fla.
Day, Gaston (M.D.) ..... Jacksonville, Fla.
Fleming, Francis P., Jr. ..... Jacksonville, Fla.
Harrison, Alex. P. (Dr.) ..... Sykesville, Md.
Hopkins, R. P. ..... Live Oak, Fla.
Love, E. C. ..... Quincy, Fla.
Love, James D. (Dr.) ..... Jacksonville, Fla.
McCord, Robert B. ..... Atlanta, Georgia.
Meginnis, B. A. (Judge) ..... Tallahassee, Fla.
Papy, L. G. ..... Bainbridge, Ga.
Perkins, Geo. B. ..... Tallahassee, Fla.
Randolph, James H. (Dr.) ..... Jacksonville, Fla.
Shackleford, T. M., Jr. ..... Tampa, Fla.
Shutan, Arthur J. ..... Chicago, Ill.
Van Brunt, R. W. ..... Chipley, Fla.
Whitfield, Louis T. ..... Tallahassee, Fla.
Winthrop, Francis B. ..... Tallahassee, Fla.
Winthrop, Guy L. ..... Blacksburg, S. C.

FLORIDA AGRICULTURAL COLLEGE AND UNIVERSITY OF FLORIDA

Alexander, Gary W. ..... Jacksonviile, Fla.
Bridges, Benj. H. ..... Tallahassee, Fla.
Brown, Maximus M. ..... Macclenny, Fla.
Burton, John W. ..... Arcadia, Fla.
Butler, David S. ..... Pecos, Texas.
Chalker, Roy L. (M.D.) ..... Lake City, Fla.
Cone, H. I. (Rear Admiral) ..... Washington, D. C.
Curry, Chester M. ..... Key West, Fla.
Curry, Chas. T. ..... Bradentown, Fla.
Davis, Chas. A. ..... Madison, Fla.
Donk, Marion G. ..... Washington, D. C.
Drumwright, E. B. ..... Tampa, Fla.
Fleming, Sam T. ..... Archer, Fla.
Flournoy, Wm. W. ..... DeFuniak Springs, Fla.
Futch, Jas. E. ..... Starke, Fla.
Getzen, J. C. ..... Webster, Fla.

*Deceased.

Getzen, L. G.....Fort White, Fla.
Heimburger, L.....Tallahassee, Fla.
Humphreys, Ralph W.....Lincolnton, Ga.
Ives, H. A. (M.D.).....Jacksonville, Fla.
Ives, Washington M. (M.D.).....Lake City, Fla.
Jackson, A. M. (Dr.).....Lakeland, Fla.
Jackson, William K.....Ancon, Canal Zone.
Keller, Eustis E.....Malvern, Pa.
McKean, Geo. R.....Tampa, Fla.
Maguire, Chas. H.....Jacksonville, Fla.
Maguire, Thos. C. (Dr.).....Plant City, Fla.
Mann, Murton.....Rochester, N. Y.
Miller, Arthur S.....High Springs, Fla.
Mitchell, J. T.....Attapulgus, Ga.
Mitchell, Wm. H. (Dr.).....Brundidge, Ala.
Morgan, Irvin.....Jacksonville, Fla.
Nielson, T. A.....East Rutherford, N. J.
Oliver, Francis M.....Savannah, Ga.
Palmer, G. O. (Hon.).....Lake City, Fla.
Pattillo, L. T. (Dr.).....Atlanta, Ga.
Pattishall, D. F.....Plant City, Fla.
Quaintance, A. L.....Washington, D. C.
Rogers, William S.....Kiowa, Oklahoma.
Rowe, R. H. (Hon.).....Madison, Fla.
Smith, W. Wesley.....New Smyrna, Fla.
Stringer, Fred L.....Brooksville, Fla.
Waugh, B. H.....Adairsville, Ga.
Waugh, H. B.....Atlanta, Ga.
Whetstone, G. M.....Plant City, Fla.
Williams, J. W.....Tampa, Fla.
Yocum, Wilbur E.....Washington, D. C.

FLORIDA STATE NORMAL SCHOOL

Andrews, Chas. O.....DeFuniak Springs, Fla.
Boutell, George H.....Bradentown, Fla.
Buie, Robert E. L.....Birmingham, Ala.
Calhoun, John M.....Marianna, Fla.
Campbell, Angus G.....DeFuniak Springs, Fla.
Gillis, J. McL.....Pensacola, Fla.
Hollowell, Alonzo.....Jacksonville, Fla.
Jernigan, Walter B.....Jay, Fla.
Jones, J. A.....Sumterville, Fla.
McMullen, E. W. (Prof.).....Sutherland, Fla.
Moore, John L.....Nashville, Tenn.
Parrish, Marion A.....Sampson, Ala.
Plank, Finise E.....DeLand, Fla.
Reeves, L. J. (Hon.).....Pensacola, Fla.
Stephens, G. A.....Palatka, Fla.
Walker, J. Hurd.....Hagerstown, Md.
Watson, W. H.....Pensacola, Fla.

SOUTH FLORIDA MILITARY AND EDUCATIONAL INSTITUTE

Angle, A. J.....Bartow, Fla.
Barnes, B. F. (Dr.).....River Junction, Fla.
Bell, J. Walter.....Oxford, Fla.
Boyd, Walter L.....Bartow, Fla.
Bradley, R. R.....Atlanta, Ga.

Bunker, Walter E.....Dade City, Fla.
Butler, Hartman L.....Ft. Logan, Colorado.
Colson, Barnard R.....Gainesville, Fla.
Fryer, Richard H.....Sumatra, Fla.
Garrison, John S.....Mobile, Alabama.
Haskins, Harold C.....Sanford, Fla.
Helton, LeRoy W.....Live Oak, Fla.
Herring, J. A.....Tampa, Fla.
Jernigan, E. H.....Noma, Fla.
Jordan, Adrian C.....Punta Gorda, Fla.
Langford, Wm. C.....Arcadia, Fla.
Law, E. A. (Dr.).....Bartow, Fla.
Loman, Augustus W., Jr.....Seattle, Washington.
Lowe, Virgil S.....Key West, Fla.
McArthur, Frank D.....Birmingham, Ala.
McMullen, William A.....Tampa, Fla.
Malsby, James W.....Columbus, Ohio.
Mountien, Chas. S.....Ashford, Alabama.
Nickerson, P. C.....Jacksonville, Fla.
Parish, Chas. W.....Parish, Fla.
Paxton, L. R.....Rockledge, Fla.
Prevatt, J. O.....Jacksonville, Fla.
Pherigo, James L.....Kansas City, Missouri.
Smith, Hugh G.....Dothan, Alabama.
Stephens, Phinehas V.....New York City.
Whitner, Arthur R.....Ft. D. A. Russell, Wyoming
Wilson, Bradley C.....Bartow, Fla.
Wilson, Cullen B.....Sarasota, Fla.
Wilson, Melville A.....Bartow, Fla.
Wilson, Milton D.....Bartow, Fla.
Wirt, Earl L.....Bartow, Fla.

CORRESPONDENCE STUDENT ROLL

1911-1912

The names and addresses of those enrolled for the Correspondence Courses in Agriculture from April 1, 1911, when the catalogue for 1911-12 went to press, to April 1, 1912, when the catalogue for 1912-13 goes to press, are given below:

Name.	*Course.*	*Postoffice.*
Alden, J. C	Elementary Agriculture	Akron, Ohio.
Aldrich, Wm. F	Trucking	Jacksonville.
Aldrich, Wm. F	Elementary Agriculture	Jacksonville.
Alexander, Harold C	Soils	LaPorte, Ind.
Alexander, Harold C	Tillage	LaPorte, Ind.
Apthorp, Grace	Poultry Husbandry	Daytona Beach.
Arango, Dr. Franklin	Elementary Agriculture	Orizaba, Mexico.
Arango, Dr. Franklin	Soils	Orizaba, Mexico.
Arango, Dr. Franklin	Tillage	Orizaba, Mexico.
Arango, Dr. Franklin	Drainage and Irrigation	Orizaba, Mexico.
Baker, Bessie	Elementary Agriculture	Floral City.
Barber, John E	Citrus Fruits and Citrus Culture	Lorain, Ohio.
Barnard, Arthur	Elementary Agriculture	Toronto, Ontario, Can.
Beals, Harry S	Trucking	Bartow.
Bell, James D	Soils	Chicago, Ill.
Benson, Clifton D	Elementary Agriculture	Baltimore, Md.
Bigelow, Mary	Elementary Agriculture	Inverness.
Bishop, W. B	Elementary Agriculture	Gretna.
Blanton, James G	Elementary Agriculture	Clearwater.
Boman, Gustaf	Citrus Fruits and Citrus Culture	South Lake Weir.
Bowers, Charles F	Soils	Canton, Ohio.
Brookhouser, C. L	Elementary Agriculture	Erie, Pa.
Brophy, W. H	Elementary Agriculture	Crystal Springs.
Brown, H. G	Citrus Fruits and Citrus Culture	Eastpoint.
Browne, J. Ira	Elementary Agriculture	Jonesboro.
Buenning, Albert	Elementary Agriculture	Olustee.
Buenning, Albert	Soils	Olustee.
Buenning, Albert	Tillage	Olustee.
Buenning, Albert	Drainage and Irrigation	Olustee.
Buenning, Albert	Manures and Fertilizers	Olustee.
Buenning, Albert	Field Crops (General)	Olustee.
Buenning, Albert	Field Crops (Southern)	Olustee.
Buttorff, P. C	Elementary Agriculture	Jeffersonville, Ind.
Butts, Dr. Elwyn	Poultry Husbandry	Dade City.
Calloway, L. L	Elementary Agriculture	Janney.
Cameron, John M	Elementary Agriculture	Pineland.
Cameron, John M	Trucking	Pineland.
Campbell, J. C	Types and Breeds of Live Stock	Zephyrhills.
Carlson, Annie Belle	Elementary Agriculture	Inverness.

Name.	*Course.*	*Postoffice.*
Carpenter, Mrs. C. A.	Soils	Tavares.
Carr, Merle H.	Elementary Agriculture	Miraflores, Canal Zone
Chandler, C. C.	Poultry Husbandry	DeLand.
Charly, Theadore	Animal Breeding	Orange Springs.
Charly, Theadore	Dairy Husbandry	Orange Springs.
Charly, Theadore	Feeds and Feeding	Orange Springs.
Charly, Theadore	Field Crops (General)	Orange Springs.
Charly, Theadore	Manures and Fertilizers	Orange Springs.
Charly, Theadore	Poultry Husbandry	Orange Springs.
Charly, Theadore	Types and Breeds of Live Stock	Orange Springs.
Christiansen, P. A.	Elementary Agriculture	U. S. S. Mississippi, care of Postmaster, New York.
Christie, Joseph A.	Drainage and Irrigation	Chicago, Ill.
Christie, Joseph A.	Tillage	Chicago, Ill.
Christie, Joseph A.	Soils	Chicago, Ill.
Clark, Geraldine	Elementary Agriculture	Inverness.
Clark, L. J.	Manures and Fertilizers	Greensboro.
Comstock, P. E.	Trucking	Sanford.
Coles, Frank F.	Poultry Husbandry	Tallahassee.
Comstock, Samuel L.	Trucking	Conasauga, Tenn.
Cooke, Ralph	Trucking	St. Cloud.
Cornman, William E.	Citrus Fruits and Citrus Culture	West Palm Beach.
Cornman, William E.	Drainage and Irrigation	West Palm Beach.
Cornman, William E.	Tillage	West Palm Beach.
Cornman, William E.	Soils	West Palm Beach.
Cornman, William E.	Elementary Agriculture	West Palm Beach.
Crawford, William H.	Trucking	Grove Park.
Crawford, William H.	Elementary Agriculture	Grove Park.
Crissy, Elice	Elementary Agriculture	City Point.
Crowell, Chas. R.	Elementary Agriculture	Tacoma, Wash.
Custin, Albert V.	Poultry Husbandry	South Jacksonville.
Dahlgren, R. E.	Elementary Agriculture	Winter Haven.
Darrow, C. Elizabeth	Elementary Agriculture	Ocala.
Davy, Burton H.	Trucking	Rochester, N. Y.
Duerloo, Adriaan	Poultry Husbandry	Hasbrouck Heights, N. J.
Dunne, Jesse H.	Elementary Agriculture	Tampa.
Eaton, Starr S.	Elementary Agriculture	Janesville, Wis.
Eby, Hugo	Tillage	Weirsdale.
Eby, Hugo	Trucking	Weirsdale.
Eby, Hugo	Elementary Agriculture	Weirsdale.
Evans, J. L.	Trucking	Tampa.
Fehler, Louis G.	Trucking	Cleveland, Ohio.
Fender, I. O.	Elementary Agriculture	Inverness.
Foulks, Frank M.	Poultry Husbandry	Largo.
Fox, W. A.	Tillage	Jacksonville.
Fox, W. A.	Citrus Fruits and Citrus Culture	Jacksonville.
Fox, W. A.	Soils	Jacksonville.
Fox, W. A.	Drainage and Irrigation	Jacksonville.
Frink, George H.	Elementary Agriculture	Brooksville.
Frueh, Ulrich	Manures and Fertilizers	Paterson, N. J.

Name.	*Course.*	*Postoffice.*
Frueh, Ulrich	Drainage and Irrigation	Paterson, N. J.
Frueh, Ulrich	Tillage	Paterson, N. J.
Fuller, Frank H	Elementary Agriculture	Frostproof.
Gardner, John S	Soils	Baltimore, Md.
Gates, L. F	Trucking	St. Louis, Mo.
Geer, Howard W	Soils	Norwich, Conn.
Gist, Charles R	Drainage and Irrigation	Des Moines, Iowa.
Glegg, W. J	Elementary Agriculture	Ruskin.
Gleichman, Marcus I	Elementary Agriculture	Largo.
Grace, J. T	Field Crops (Southern)	Graceville.
Graham, David	Poultry Husbandry	Belleview.
Grainger, Felix T	Elementary Agriculture	Richmond Hill, N. Y.
Hall, Mrs. Emory Allan	Elementary Agriculture	Tampa.
Hall, Emory Allan	Poultry Husbandry	Tampa.
Hamilton, H. I	Elementary Agriculture	New Smyrna.
Hamilton, H. E	Poultry Husbandry	New Smyrna.
Harms, Henry L	Elementary Agriculture	Sopchoppy.
Harveson, Frederick J	Soils	Chicago, Ill.
Harveson, Frederick J	Tillage	Chicago, Ill.
Harveson, Frederick J	Drainage and Irrigation	Chicago, Ill.
Harvey, Earl E	Elementary Agriculture	Cocoanut Grove.
Heck, Joy	Elementary Agriculture	Miami.
Heck, Joy	Poultry Husbandry	Miami.
Heck, Joy	Manures and Fertilizers	Miami.
Heck, Joy	Soils	Miami.
Henry, Mrs. A. J	Poultry Husbandry	Lake City.
Herman, J. B	Trucking	Rochester, N. Y.
Hermes, Paul E	Citrus Fruits and Citrus Culture	Chicago, Ill.
Hodge, Henry G	Poultry Husbandry	Palatka.
Hubbell, E. P	Elementary Agriculture	Plant City.
Hyde, C. L	Elementary Agriculture	Chicago, Ill.
Johnson, Ethel	Elementary Agriculture	Floral City.
Johnson, Jorda	Elementary Agriculture	Inverness.
Kelly, Miles	Elementary Agriculture	Glen Riddle, Pa.
Kennicott, Harold B	Elementary Agriculture	Chicago, Ill.
Kenny, Mrs. Helena	Poultry Husbandry	Fall River, Mass.
Kirk, Eleanor H	Elementary Agriculture	St. Louis, Mo.
Kyle, Robert H	Elementary Agriculture	Fort Morgan, Ala.
Kyte, J. P	Elementary Agriculture	Covozal, Canal Zone.
Laasch, A. H	Poultry Husbandry	Dover.
Lafon, N	Manures and Fertilizers	Paisley.
Lamson, Herbert	Elementary Agriculture	Jacksonville.
Larsen, L. W	Elementary Agriculture	Jacksonville.
Larsen, L. W	Trucking	Jacksonville.
Leavitt, W. E	Trucking	Brooksville.
Leavitt, Mrs. W. E	Poultry Husbandry	Brooksville.
Leisher, Rev. William L	Drainage and Irrigation	Wabasso.
Leisher, Rev. William L	Tillage	Wabasso.
Leisher, Rev. William L	Soils	Wabasso.
Lewis, Arthur C., Jr	Elementary Agriculture	Washington, D. C.
Livingston, John H	Elementary Agriculture	Starke.
Lyman, Everett C	Soils	Ruskin.

Name.	*Course.*	*Postoffice.*
MacPherson, J. W.	Elementary Agriculture	North Attleboro, Mass
McCoy, Maggie M.	Elementary Agriculture	Istachatta.
Majory, Charles J.	Elementary Agriculture	Manatee.
Majory, Charles J.	Trucking	Manatee.
Manger, G. A.	Trucking	Brooksville.
Martin, H. E.	Soils	Chicago, Ill.
Mapp, Edward	Elementary Agriculture	Duluth, Minn.
Matter, E. P.	Elementary Agriculture	Pedro Miguel, C. Z.
Mattocks, John Edward.	Manures and Fertilizers	Kissimmee.
Mattocks, J. E.	Citrus Fruits and Citrus Culture	Kissimmee.
Monks, Paul M.	Elementary Agriculture	Pinellas Park.
Moon, Ethel	Elementary Agriculture	Floral City.
Moore, A. S.	Trucking	Brooksville.
Moreno, Estevan A.	Soils	Tampa.
Morse, C. Marguerite	Tillage	Cocoa.
Murray, Zelle	Elementary Agriculture	Inverness.
Neel, Dr. Edith K.	Elementary Agriculture	Santa Rosa.
Nickerson, George E.	Tillage	East Harwich, Mass.
Nickerson, George E.	Soils	East Harwich, Mass.
North, Maude	Elementary Agriculture	Palatka.
Orehard, P. W.	Soils	Arcadia.
Orehard, P. W.	Tillage	Arcadia.
Orehard, P. W.	Drainage and Irrigation	Arcadia.
Pennock, Henry S.	Elementary Agriculture	Jupiter.
Peterson, Albert	Manures and Fertilizers	Chicago, Ill.
Pope, Mrs. Dollie	Poultry Husbandry	Bartow.
Potter, R. D.	Elementary Agriculture	Stemper.
Rabiger, Edw. G.	Elementary Agriculture	Jacksonville.
Rees, O. P.	Elementary Agriculture	Salerno.
Rit, Maurice J.	Elementary Agriculture	West Palm Beach.
Rylands, Tom	Trucking	New York, N. Y.
Samec, Frank	Elementary Agriculture	Rodman.
Samec, Frank	Trucking	Rodman.
Sanford, C. S.	Elementary Agriculture	Chicago, Ill.
Scarr, Mrs. John W.	Types and Breeds of Live Stock	Lakeland.
Scarr, Mrs. John W.	Trucking	Lakeland.
Scarr, Mrs. John W.	Manures and Fertilizers	Lakeland.
Schefcik, Jos. F.	Elementary Agriculture	Little River.
Schweizer, L. A.	Tillage	Cocoanut Grove.
Schweizer, L. A.	Soils	Cocoanut Grove.
Schweizer, L. A.	Elementary Agriculture	Cocoanut Grove.
Schweizer, L. A.	Drainage and Irrigation	Cocoanut Grove.
Scofield, Mannie C.	Elementary Agriculture	Inverness.
Shaw, Edith M.	Citrus Fruits and Citrus Culture	Anona.
Sims, Loula	Elementary Agriculture	Martel.
Skalicky, Jaro	Trucking	Lyons, Ill.
Somerville, S. M.	Poultry Husbandry	Crystal Springs.
Spriegel, Marie	Soils	Nehawka, Neb.
Steiner, Joseph M.	Trucking	San Francisco, Cal.
Stephens, Esther	Elementary Agriculture	Inverness.

Name.	*Course.*	*Postoffice.*
Sterne, John	Elementary Agriculture	Harlowton, Mont.
Stevenson, J. W.	Elementary Agriculture	Astor.
Street, Douglas P.	Elementary Agriculture	Chicago, Ill.
Strom, Samuel H.	Soils	Juniper.
Sullivan, Mary Sue	Elementary Agriculture	Inverness.
Swartz, Charles R.	Elementary Agriculture	Gainesville.
Tallman, Mrs. Anna	Poultry Husbandry	Lockhart.
Taylor, T. B.	Feeds and Feeding	Leesburg.
Terner, E. U.	Trucking	St. Augustine.
Turner, L. A.	Elementary Agriculture	Chicago, Ill.
Trowbridge, Lee O.	Elementary Agriculture	Hansford.
Valentine, Clarence	Elementary Agriculture	Albany, N. Y.
Vogell, Charles G.	Trucking	New York, N. Y.
Warden, F. G.	Elementary Agriculture	Elkton.
Weitzel, J. L.	Soils	Carlisle, Pa.
Wilder, George	Soils	Call.
Williams, R. Joy	Field Crops (Southern)	Gainesville.
Whitelaw, Ione	Elementary Agriculture	Floral City.
Whitelaw, Laura	Elementary Agriculture	Floral City.
Whiting, J. E.	Elementary Agriculture	Wolf Creek, Mont.
Wright, Edgar A.	Soils	Tampa.
Wright, Edgar A.	Trucking	Tampa.
Wyman, Dr. W. E. A.	Trucking	Pinellas Park.
Wyman, Dr. W. E. A.	Tillage	Pinellas Park.
Wyman, Dr. W. E. A.	Citrus Fruits and Citrus Culture	Pinellas Park.
Wyman, Dr. W. E. A.	Field Crops (Southern)	Pinellas Park.
Yeiser, Charles J.	Elementary Agriculture	Cristobal, C. Z.
Zeek, C. F.	Elementary Agriculture	Pensacola.

Total number correspondence students, 173.

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UNIVERSITY OF FLORIDA

FOURTH ANNUAL

ANNOUNCEMENT

OF THE

COLLEGE OF LAW

1912-1913

GAINESVILLE, FLA.:
PUBLISHED QUARTERLY BY THE UNIVERSITY
MAY, 1912

UNIVERSITY CALENDAR

1912-1913

1912—September 17, *Tuesday*.....Summer Recess ends.
Examinations for Admission.
Registration of Students.
September 18, *Wednesday*.....First Semester begins.
October 5, *Saturday*.....Re-examinations.
October 5, *Saturday, 2:30 p. m*.....Meeting of General Faculty.
November 18, *Monday*.....Farmers' Short Course begins.
November 27, *Wednesday, 5:30 p. m*Thanksgiving Holiday begins.
December 1, *Sunday, 7:00 p. m*....Thanksgiving Holiday ends.
December 14, *Saturday*.....Farmers' Short Course ends.
December 21, *Saturday, 11:30 a. m*..Christmas Recess begins.

1913—January 4, *Saturday, 9:00 a. m*.....Christmas Recess ends.
January 29, *Wednesday*.....First Semester ends.
January 30, *Thursday*.....Second Semester begins.
February 8, *Saturday, 2:30 p. m*....Meeting of General Faculty.
February 17, *Monday*.....Spring Term for Teachers begins.
February 22, *Saturday*.....Field Day.
March 1, *Saturday*.....Re-examinations.
May 31, *Saturday, 2:30 p. m*.....Meeting of General Faculty.
June 1 to 3.....Commencement.
June 1, *Sunday*.....Baccalaureate Sermon.
June 2, *Monday*.....Oratorical Contests.
June 3, *Tuesday*.....Graduating Day.
June 4, *Wednesday*.....Summer Recess begins.
June 6, *Friday*.....Examinations for Admission.

1912 CALENDAR 1913

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BOARD OF CONTROL

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Professor of Law.

EDMUND C. DICKINSON, A.B., J.D.,
Professor of Law.

SPECIAL LECTURERS

1911-1912

CHIEF JUSTICE JAMES B. WHITFIELD,
JUSTICE R. F. TAYLOR,
JUSTICE W. A. HOCKER,
JUSTICE R. S. COCKRELL,
JUSTICE THOS. M. SHACKLEFORD, LL.D.,
All of the Supreme Court of Florida.

THE COLLEGE OF LAW

SPECIAL LECTURERS

In addition to the regular work of the College of Law, as hereafter outlined, special lectures are given from time to time by leading members of the bench and bar of the State. During the year just closed the Law School was peculiarly fortunate in having such lecturers as Chief Justice Whitfield and Justices Cockrell, Shackelford and Taylor, all of the Supreme Court of Florida. Chief Justice Whitfield delivered two lectures, the first on Public Service Corporations and the second on Appellate Procedure and Practice in Florida. Justice Cockrell also lectured on Florida Appellate Procedure and Practice. Justice Shackelford gave four lectures on General Practice and Justice Taylor lectured on Legal Ethics.

The faculty and students of the College of Law feel grateful to the members of our Supreme Court for the helpful and instructive lectures delivered by them, and also for the uplift and inspiration caused by their interest in the work of the College of Law manifested by their visits to the University. A similar course of lectures is being arranged for the coming year.

LOCATION OF THE UNIVERSITY

The University of Florida is located at Gainesville, a city of 8,000 inhabitants, the judicial seat of Alachua County, in a region noted for its beauty and healthfulness. The city is the headquarters of the phosphate industry and is surrounded by a productive agricultural district. Besides being the seat of the University of Florida, Gainesville has a well organized public school of twelve grades, a public library and beautiful churches of the leading religious denominations.

Gainesville enjoys excellent railroad facilities, affording her ready communication with every part of the State by means of the A. C. L., the T. and J. and the S. A. L. Railroads. It is seventy miles from Jacksonville, forty miles from Ocala, and one hundred and seventy-seven miles from Tampa.

GENERAL STATEMENT

In 1891, the American Bar Association declared that in its opinion it was a part of the highest duty and interest of every civilized State to make provision, when necessary, for maintaining schools of law and the thorough legal education of all who are licensed to practice law. Feeling with its full force the soundness of this doctrine and being moved by a desire to discharge this duty on the part of the State, the State Board of Education and the Board of Control provided for the opening of the College of Law in the Univeristy of Florida in September, 1909. The advantages to accrue to the State from having a thorough and systematic course of instruction in the common law, with special consideration of the peculiarities and exceptions applicable in Florida, as a part of its educational system, are many and evident.

It was the purpose of the Board of Control to establish in the University of Florida a law school which, by the quality of its work and the character of its equipment, would merit and command the confidence and support of the bench and bar of the State and would draw within its walls the young men who will constitute the future bar of Florida. That the hopes of accomplishing these results were well founded and

that gratifying progress towards these ends has been made, are shown by the number and character of those who have availed themselves of the advantages offered by the College of Law.

REQUIREMENTS FOR ADMISSION

Graduates and matriculates of colleges and universities and applicants who have completed a high school course of four years will, upon presentation of proper credentials to that effect, be admitted to the College of Law without examination as to preliminary education, as candidates for a degree. Other applicants, if condidates for a degree, must show by written examination, or by certificate of the superintendent or principal of the institution where they took the work, that they have satisfactorily completed two years of high school work, one-fourth of which must be work in English.

Notice is hereby given that with the opening of the session of 1913, the minimum requirements for admission to the College of Law will be increased to three years of high school work and in the fall of 1914 a high school course of four years will be required.

SPECIAL STUDENTS

Persons who are at least twenty-one years of age and are unable to comply with the above entrance requirements in their entirety, are allowed to become special students and pursue a selected course of study under the guidance of the Dean of the College of Law, but without the privilege of being enrolled as candidates for a degree. If the entrance conditions are removed not later than the opening of the first semester of the senior year, such students may, by special vote of the Faculty, become regular students and candidates for a degree.

ADVANCED STANDING

Attorneys at law who have been admitted to practice in the courts of this State and who comply with the above entrance requirements will be admitted to the senior class without examination.

No work in law done in other institutions will be accepted towards a degree, unless the applicant passes satisfactorily the

examinations held in the subjects in the junior year of this department, or unless, by special vote of the Law Faculty, credit is given towards senior standing without examination for such work. In no case will credit be given in this way for work not done in residence at an approved law school.

COURSE OF INSTRUCTION

The course of instruction in the College of Law extends through two years of thirty-five weeks each, exclusive of vacations. The academic year is divided into two semesters, the first having eighteen weeks and the second seventeen.

The purpose of the College of Law is to educate its students by the study of jurisprudence and to acquaint them with the foundation principles of the common law at the same time. "The ability to think clearly, to reason closely, to appreciate distinctions quickly, to investigate thoroughly, to generalize accurately and to state his conclusions tersely, are prime requisites of the safe counselor." To secure for the student this power should be the constant effort of both student and faculty.

The method of instruction in the College of Law has been planned with these ends in view. This is largely by the use of text-books and selected cases. Each case is carefully studied by the student and in the class room he is required to analyze it, giving in his own language a clear and concise statement of the essential facts, the issues involved in the case, the law governing it and the reasoning of the court for the conclusion reached. This practice tends "to greater thoroughness in reading, greater care in reasoning and greater accuracy on the part of the student in the art of expression."

In connection with this case work, the student studies a well-written text-book on the subject under consideration which gives him a systematic summary of the same, more detailed information concerning the application of the law in particular instances and an outline of the exceptions to and limitations upon the general principles considered in the cases.

Particular stress is placed on the statutory modifications of the common law in Florida. This is true in every subject in the curriculum, but it is especially emphasized in Pleading, Practice and Evidence, as the course of study is designed to thoroughly

instruct the student in the peculiarities of substantive law and procedure in Florida so he will be able to enter upon the practice understandingly at once.

With these ends in view, the following course of study has been prepared:

FIRST YEAR

FIRST SEMESTER

CONTRACTS.—The nature of contract; offer and acceptance; form and consideration; capacity of parties; reality of consent; legality of object; operation of contract. Text-books: Clark on contracts and Huffcut and Woorduff's Cases on Contracts. (*3 hours a week. Dean Hughes.*)

ELEMENTARY LAW AND ELEMENTARY REAL PROPERTY.—Study of the elementary principles of the law as given in Books I, II and III of first edition of Robinson's Elementary Law and the first six chapters of Hopkins on Real Property. (*4 hours a week. Professor Dickinson.*)

CRIMINAL LAW.—Nature of crime; common law and statutory offenses; mental element in crime; insanity, intoxication infancy, coercion, ignorance and mistake as bearing on exemption from responsibility; necessity; justification; agency; consent; condonation; contributory acts; principals; accessories; classification and study of particular crimes; former jeopardy; State and Federal jurisdiction. Text-books: Clark on Criminal Law and the Statutes of Florida. (*2 hours a week. Professor Trusler.*)

DOMESTIC RELATIONS.—This course considers thoroughly the law of husband and wife, parent and child, guardian and ward, infants, persons *non compos mentis* and aliens. Text-books: Long's Domestic Relations and the Statutes of Florida. (*2 hours a week. Professor Dickinson.*)

TORTS.—History and definitions; elements of torts; conflicting rights; mental anguish; parties to tort actions; remedies; damages; conflict of laws; method of discharge. Text-books: Burdick on Torts and Burdick's Cases on Torts. (*3 hours a week. Professor Trusler.*)

SECOND SEMESTER

CONTRACTS.—Interpretation of contract; discharge of contract; remedies for breach of contract. Text-books: Clark on Contracts, Huffcut and Woodruff's Cases on Contracts and the Statutes of Florida. (*3 hours a week. Dean Hughes.*)

SALES OF PERSONAL PROPERTY.—Sale and contract to sell; statute of frauds; illegality; conditions and warranties; delivery; acceptance and receipt; vendor's lien; stoppage in transitu; bills of lading; remedies of seller and buyer. Text-book: Tiffany on Sales. (*1 hour a week. Professor Trusler.*)

TORTS.—Exhaustive study of particular torts, including among others, false imprisonment; malicious prosecution and abuse of process; conspiracy; slander and libel; trespass; conversion; deceit; nuisance; negligence. Text-books: Burdick on Torts and Burdick's Cases on Torts. (*2 hours a week. Professor Trusler.*)

AGENCY.—Definitions and divisions; purposes for which the relation may be created and how; who may be principal or agent and evidence of the existence of the relation; ratification; delegation of authority by agent; termination, nature and extent, construction and execution of the authority; rights, duties and liabilities of agent, principal and third persons, the one to the other; particular classes of agents. Text-books: Mechem's Outlines of Agency and Mechem's Cases on Agency. (*2 hours a week. Professor Dickinson.*)

COMMON LAW PLEADING—Definition and classification of actions; proceedings in an action; analysis of the declaration; Stephen's Rules of Pleading. Text-books: Shipman's Common Law Pleading, the Statutes of Florida and the Supreme and Circuit Court Rules in Common Law Actions in Florida. (*3 hours a week. Dean Hughes.*)

EQUITY JURISPRUDENCE I.—History and definition; jurisdiction; general maxims; equitable estates, interests and primary rights, including a study of trusts, the powers, duties and liabilities of trustees; mortgages; equitable liens; assignments. Text-books: Eaton on Equity and Selected Cases. (*2 hours a week. Professor Trusler.*)

BAILMENTS AND CARRIERS.—Nature and classification of bailments; rights and liabilities of the parties; innkeepers. Carriers of goods as to liability, discrimination, compensation, lien. Carriers of passengers as to duty to accept, accommodations, ticket, ejection, personal injuries. Action against carriers. Text-books: Goddard's Outlines of Bailments and Carriers and Goddard's Cases on Bailments and Carriers. (*2 hours a week. Professor Dickinson.*)

CRIMINAL PROCEDURE.—Jurisdiction and venue; arrests, searches and seizures; extradition; preliminary examination, bail and commitment; modes of accusation; the form of accusation; pleadings; proof; variance; verdict and judgment; proceedings after verdict; evidence; habeas corpus. Text-books: Beale's Criminal Procedure and the Statutes of Florida. (*1 hour a week. Professor Trusler.*)

BRIEF MAKING AND THE USE OF LAW BOOKS.—Where to find the law; how to use statutes and decisions; how to find the law. Text-book: Brief-Making and the Use of Law Books. (*1 hour a week. Professor Dickinson.*)

SECOND YEAR

FIRST SEMESTER

EQUITY PLEADING.—Nature and object of pleadings in equity; parties to a suit in equity; proceedings in a suit in equity; bills in equity; the disclaimer; demurrers and pleas in equity; replication and answers in an equitable suit. Text-books: Shipman's Equity Pleading, Rules of the Circuit Court in Chancery in Florida and the Statutes of Florida. (*2 hours a week. Professor Trusler.*)

EVIDENCE.—Rules as to admission and exclusion of evidence; judicial notice; parole evidence rule; burden of proof and the right to open and close; competency and examination of witnesses; production of documents, persons and things; direct examination, cross examination and redirect examination. Text-books: Reynolds on Evidence, Wilgus's Cases on Evidence and the Statutes of Florida. (*3 hours a week. Dean Hughes.*)

REAL PROPERTY II.—Text-books: Hopkins on Real Property Completed and the Statutes of Florida. (*2 hours a week. Professor Dickinson.*)

NEGOTIABLE INSTRUMENTS.—Law Merchant; definitions and general doctrines; contract of the maker, acceptor, certifier; drawer; indorser, vendor, accommodater, assurer; proceedings before and after dishonor of negotiable instruments; absolute defenses; equities; payments; conflict of laws. Text-books: Bigelow on Bills, Notes and Cheques, the Negotiable Instrument Act of Florida, and selected cases. (*2 hours a week. Professor Dickinson.*)

EQUITY JURISPRUDENCE II.—Accident, mistake and fraud; penalties and forfeitures; priorities and notice; bona fide purchasers; estoppel; election; satisfaction and performance; conversion; specific performance; injunction; reformation; cancellation; cloud on title; ancillary remedies. Text-books: Eaton on Equity and selected cases. (*2 hours a week. Professor Trusler.*)

ORGANIZATION OF AND PROCEEDINGS IN THE COURTS OF FLORIDA IN CIVIL ACTIONS.—

a. *In General.*—Disqualification, resignation, and removal of judges; judge's power in vacation; judge ad litem; parties to suits at law; locality and consolidation of actions; joinder of causes of actions; rule days; commencement of suits at common law; appearances, defaults and judgments upon default; pleadings at law; witnesses and evidence; jurors; judgments and executions; motion for new trial and in arrest of judgment; lis pendens; appellate proceedings at law and in probate matters; limitation of actions.

b. *Supreme Court.*—Statutory powers; members of the court; its terms, record, clerk, seal, decisions and reports.

c. *Circuit Court.*—Statutory powers and duties of judges; terms; records and dockets to be kept by the clerk; seal and records

d. *Circuit Court in Chancery.*—Its power in vacation; locality of action; process, its service and return; bill, demurrer, plea and answer; practice and evidence; masters in chancery; decrees; rehearings and appeals; injunctions; ne exeat; divorce and alimony; partition of property; quieting titles; disability of minors and married women; liens.

e. *Statutory Jurisdiction of Circuit Court.*—Ejectment; re-establishing lost papers; adoption of children; eminent domain; court commissioners.

f. *County Court.*—Jurisdiction; terms; clerk; seal; records; appeals; rules of practice.

g. *County Judge's Court.*—General powers; bonds; clerk; seal; probate powers; as justice of the peace; forcible entry and detainer.

h. *Courts of Justices of the Peace.*—General provisions; jurisdiction; proceedings before, at and after trial; proceedings on appeal.

i. *Special Statutory Proceedings at Law.*—Attachment; garnishment; forcible entry and detainer; replevin; statutory liens; landlord and tenant.

j. *Extraordinary Legal Remedies.*—Habeas corpus; quo warranto; prohibition.

Text-books: Shipman's Common Law and Equity Pleading, General Statutes of Florida, decisions of Florida Supreme Court and the Common Law and Equity Rules of Practice of the Circuit and Supreme Courts of Florida. (*2 hours a week throughout the year. Dean Hughes.*)

THE UNIVERSITY PRACTICE COURTS.—One hour a week throughout the year.

FLORIDA CONSTITUTIONAL LAW.—Declaration of rights; legislative, executive, and judicial departments of government; suffrage and eligibility; census and apportionment; counties and cities; taxation and finance; homestead and exemptions; married women's property; education; public institutions; miscellaneous provisions. Text-books: The Constitution, Statutes and Judicial Decisions of Florida. (*1 hour a week. Professor Trusler.*)

JURISDICTION OF THE UNITED STATES COURTS.—Under the federal constitution; jurisdiction of different federal courts; ancillary and appellate jurisdiction; bankruptcy; admiralty suits; federal questions: removal from state to federal courts, habeas corpus. Text-books: Thayer's Jurisdiction of the Federal Courts and selected cases. (*1 hour a week. Professor Trusler.*)

BRIEF MAKING AND THE USE OF LAW BOOKS.—The trial brief; the brief on appeal and its preparation. Text-book: Brief Making and the Use of Law Books. (*1 hour a week. Professor Dickinson.*)

BROOM'S LEGAL MAXIMS.—A reading course running throughout the year. (*Dean Hughes.*)

SECOND SEMESTER

UNITED STATES CONSTITUTIONAL LAW.—General principles; distribution of governmental powers; congress; the chief executive; the judiciary; police powers; eminent domain; checks and balances; guarantee of republican government, civil rights; political privileges; guarantees in criminal cases; impairment of contractual obligations; municipal corporations. Text-books: Cooley's Principles of Constitution Law and Cooley's Constitutional Limitations. (*2 hours a week. Professor Trusler.*)

WILLS.—Definition, nature and kinds of wills; a devisable estate; who may make a will; error, fraud, undue influence and mistake; who may take by will; formal requisites of wills; revocation; re-publication; by what law wills are governed; construction and effect of wills; lapse and substitution; rights and liabilities of devisees and legatees; descent and distribution. Text-books: Rood on Wills and the Statutes of Florida. (*2 hours a week. Professor Dickinson.*)

LEGAL ETHICS.—A consideration of the profession of the law in its relation to society, embracing the duties the lawyer owes to the commonwealth, to the court, to his professional brethren, and to his clients. Text-books: Sharswood's Legal Ethics and the Code of Ethics adopted by the American Bar Association. (*1 hour a week. Dean Hughes.*)

EXECUTORS AND ADMINISTRATORS.—When necessary; appointment and qualification; acceptance or renunciation; foreign and interstate adminsitration; powers, duties and liabilities of executors and administrators; inventory; assets of estate; insolvent estates; distribution; accounting and allowances. Text-books: Croswell's Executors and Administrators and the Statutes of Florida. (*2 hours a week. Professor Trusler.*)

DAMAGES.—General principles; nominal, compensatory, exemplary, and liquidated damages; interest; value; pleading and practice; breach of contracts for sale of goods; actions against carriers; death by wrongful act; wrongs affecting real property; damages in tort action; breach of marriage promise. Text-book: Cases on Damages, selected from the Florida Reports. (*1 hour a week. Professor Trusler.*)

PARTNERSHIP.—Definitions and classifications; what constitutes a partnership; contract of partnership; firm name and good will; capital of firm; partnership property; rights and liabilities of partners among themselves and as to third persons; actions; dissolutions; limited partnerships. Text-book: Mechem's Cases on Partnership. (*1 hour a week. Professor Dickinson.*)

PRIVATE CORPORATIONS—Nature of a corporation; creation and citizenship of corporations; defectively organized corporations; corporation and its promoters; powers and liabilities of corporations; corporation and the State; dissolution of corporations; membership in corporations; management of corporations; creditors, their rights and remedies; foreign corporations. Text-books: Clark on Corporations and the Statutes of Florida. (*3 hours a week. Professor Dickinson.*)

The text-books announced are subject to change.

EXAMINATIONS

The last week of each semester is devoted to examinations covering the work of the semester. These examinations are in writing and are rigid and searching, but ARE NOT NECESSARILY FINAL. To be considered, prima facie, to have satisfactorily completed a subject, the student must obtain an average grade of at least 75 per cent, and an examination grade of at least 75 per cent During the last week of the second year, any candidate for a degree may be required to pass an examination in any or all subjects given in the course and attain a minimum average grade of 75 per cent in all subjects in order to be recommended for a degree.

THE UNIVERSITY PRACTICE COURTS

Thoroughly organized practice courts are regular features of the course of instruction in the second year Weekly sessions of the courts are held over which the Judge of the Practice Court presides The object of the course in the Practice Courts is to give the student practical instruction in pleading and practice at law and in equity and experience in the preparation and trial of cases The work is arranged as follows:

First—Cases arising upon prepared statements of fact are assigned to the second year students upon which they are to determine what proceedings to bring and how to bring them, issue, serve and return process, prepare the pleadings and bring the case to an issue on a question of law Each student must take part in one case at law and one in equity. The case is first heard on the sufficiency of the form and the structure of the pleadings and, when these are approved, the issue of law is argued and decided, the students acting as attorneys on each side drawing the order, judgment or decree they deem themselves entitled to.

Second.—In the second class of cases in the Practice Court, actual controversies are arranged and assigned for trial in the Circuit Court as issues of fact. After determining what action to bring, the students assigned to the case are required to issue the proper process and prepare and file the necessary pleadings, subpoena the witnesses, select the jury, examine and cross-examine the witnesses and argue the case to the jury. Each student is required to participate in the trial of one civil and one criminal case and must take part in carrying one chancery, one civil and one criminal case to the Supreme Court for review.

THE LAW LIBRARY

Law books are the working tools of the practicing lawyer. To teach the student how to use these tools, how to use the digest, encyclopedias and reports, is as much the work of the law school as to teach him the general principles of the law.

The College of Law was fortunate in being able to open its doors with a good working library and now has on its shelves the following books: Three sets of the Florida Supreme Court Reports, with digest; The Session Laws of Florida from 1822 to 1911, except from 1828 to 1834; McClellan's Digest and Duval's

Compilation of the Laws of Florida; Revised Statutes of 1892 and the General Statutes of 1906; The Northwestern, Southwestern, Northeastern, Southeastern, Atlantic, Pacific and Southern Reporters; The American Decisions, American Reports and American State Reports, with digests; The Lawyers Reports Annotated, with digests; The United States Supreme Court Reports, with digests; The New York Common Law and Chancery Reports, with digests; The New York Court of Appeals Reports, the Reports of the Supreme Courts of Michigan and Massachusetts and the New Jersey Equity Reports to the Reporters; The Reprint of the English Reports, the Encyclopedia of Law and Procedure and more than two hundred of the leading text-books and books of reference. The Legislature of 1911 has also appropriated one thousand dollars for the purchase of new books.

THE MARSHALL DEBATING SOCIETY

It is important that those who study law and intend to engage in its practice should give attention to the subject of public speaking. To suppose that excellence in public speaking and debating is a gift of nature only and not the result of patient and persistent effort, is a mistake. Believing in the truth of these statements, the students in the College of Law met early the first year and organized a society that would secure to its members practice in debating and public speaking and experience in arguing legal questions, as well as drill in parliamentary law. The society was fittingly named "The Marshall Debating Society," in honor of the memory of that distinguished Southern jurist, John Marshall. The membership and work in the society are limited to students in the College of Law, but the Faculty give all assistance and encouragement to the work that is possible.

UNIVERSITY PRIVILEGES

The advantages of the other departments of the University are open to such students in the College of Law as desire and are able to accept them. Courses in Constitutional and Political History, International Law, Political Economy, Logic, Rhetoric and English Composition are particularly recommended to law students. No extra charge will be made for such courses, but

students in the College of Law will be permitted to take them only with the consent of the Law Faculty and the professors whose courses they wish to take.

DEGREE

The degree of Bachelor of Laws (LL.B.) is conferred upon those students who satisfactorily complete the course of study as previously described. Students admitted to advanced standing may, if they do satisfactorily the work as prescribed by the rules of the department, receive the degree after one year's residence, but in no case will the degree be granted unless the candidate is in actual residence during all of the second year.

ADMISSION TO THE BAR

The graduates of the College of Law are licensed by the Supreme Court, without examination, to practice in all the Courts of Florida upon presenting their diplomas, duly issued by the proper authorities and upon furnishing satisfactory evidence that they are twenty-one years of age and of good moral character.

EXPENSES

TUITION.—A tuition fee of twenty dollars a semester, payable in advance, will be charged all students.

REGISTRATION FEE.—An annual registration fee of five dollars will be charged all students.

DAMAGE DEPOSIT.—In order to secure the University property against damage, the sum of five dollars ($5.00) must be deposited at registration. Damage known to have been done by any student will be charged to his individual account; all other damages will be prorated among the students.

At the end of the scholastic year, this deposit, less the amount deducted, will be returned to the student.

INFIRMARY FEE.—An infirmary fee of three dollars ($3.00) will be charged each student residing on the campus, the proceeds of which will go towards defraying the salary of a resident nurse. This will secure the student, in case of illness, the privilege of a bed in the infirmary, which occupies Section A of

Thomas Hall; the services of the nurse, and attention from the University physician, E. R. Flint, M.D. (Harvard). The payment of this fee does not increase the University charges made in former years, as a like amount is deducted from the cost of board and lodging for the first semester.

Board and Lodging.—Board and lodging will be furnished by the University at a cost of sixty dollars ($60.00) for the first semester, not including the Christmas vacation, and sixty-four dollars and fifty cents ($64.50) for the second semester. These sums must be paid at the beginning of each semester. Board and lodging will be furnished only by the semester and not by the month. In very exceptional cases, arrangements may be made to pay in three installments, payable in advance. This includes meals in the dining-hall and room (with heat, light and access to a bath room), furnished as stated below. The dining-hall will be closed during the Christmas holidays.

Room Without Board.—Students occupying a room in the Dormitories, but not taking meals in the dining-hall, will be charged $20.00 per semester for lodging.

Furniture.—All rooms are partially furnished. The furniture consists of two iron bedsteads and mattresses, chiffonier, or bureau, table, washstand and chairs. The students are required to provide all other articles, including pillows, bedding, wash bowl, pitcher, mirror, half curtains, mosquito-bar, etc.

Books.—The text-books used in the College of Law will, in most cases, be found in the law library, but it will be necessary for students to provide themselves with books for their daily use. The cost of books is about forty-five dollars a year for each year of the course. Nearly all the books are standard texts and will form a nucleus of the student's future library.

Diploma Fee.—No diploma fee is charged on graduation.

Summary of Expenses.—It will thus be seen that the total minimum cost to the student of a year's work in the College of Law, exclusive of books and laundry, is one hundred and sixty-five ($165) dollars.

Military Drill and Discipline.—Law students are excused from military drill and are not subject to military discipline.

REGISTER 1911–1912

SENIOR CLASS

Name.	*Postoffice.*	*State or County.*
Bowers, R. D	Gainesville	Alachua.
Buie, D. M	Bell	LaFayette.
Cason, F. W (B.S.) (Southern College.)	Tampa	Hillsboro.
Donnell, E. B. (A.B.) (Peabody College.)	Baton Rouge	Louisiana.
Fields, W. P	Hosford	Liberty.
Ferrell, H. A	Apalachicola	Franklin.
Godwin, J. L	Lyons	Georgia.
Harrison, W. T	Parrish	Manatee.
Keen, S. S	Lake City	Columbia.
King, R	Jacksonville	Duval.
Mershon, M. L	Gainesville	Alachua.
Moon, C. M	Kissimmee	Osceola.
McMullen, M. A	Largo	Pinellas.
O'Berry, M. L	Kissimmee	Osceola.
Philips, A. E. (A.B.) (University of Tennessee.)	Fernandina	Nassau.
Price, W. C	Marianna	Jackson.
Randell, R. W	Madison	Madison.
Trantham, T. S	Camden	South Carolina.
Walker, W. S	Jacksonville	Duval.

JUNIOR CLASS

Bennett, A. C	Gainesville	Alachua.
Black, L. W	Grandin	Putnam.
Brooks, A. C	Lake Butler	Bradford.
Bullock, J. R	Ocala	Marion.
Christie, W. McL	Jacksonville	Duval.
Clayton, O. J	Aucilla	Jefferson.
Coleman, H. K	Tampa	Hillsboro.
Cox, B. A	Vernon	Washington.
Crum, L. D	Trilby	Pasco.
Diamond, C. P	Cora	Santa Rosa.
Florence, J. W	Pensacola	Escambia.
Futch, Eli	Gainesville	Alachua.
Garrett, G. P	Kissimmee	Osceola.
Gibson, J. B., Jr	River View	Hillsboro.
Hocker, F. R	Ocala	Marion.
Household der, E. F	Plant City	Hillsboro.
Kennedy, W. M	Umatilla	Lake.
Langston, B. G. (A.B.) (University of Florida.)	Chipley	Washington.
Lawler, S. W., Jr	Bartow	Polk.
Lischkoff, L. N	Pensacola	Escambia.
McCaskill, J. M	Sanford	Orange.
Miller, O. S	Folkston	Georgia.
Mobley, Paul	Punta Gorda	DeSoto.
Phipps, C. M. (A.B.) (University of Mississippi.)	Terra Ceia	Manatee.
Riherd, F	Glasgow Junction	Kentucky.
Welch, C. L	Tampa	Hillsboro.
Wood, H. W	Arcadia	DeSoto.

SPECIAL STUDENTS

Name.	*Postoffice.*	*State or County.*
Alderman, T. J	Starke	Bradford.
Blackwelder, J. J	Lake Butler	Bradford.
DeVane, E. C	Plant City	Hillsboro.
Graham, K. H	Gainesville	Alachua.
Magaha, E. M	Jay	Santa Rosa.
Mathis, B. V	Ponce de Leon	Holmes.
Shoemaker, J	Gainesville	Alachua.

ALUMNI OF THE COLLEGE OF LAW

CLASS OF 1910

Name	*Occupation*	*Address*
E. C. Calhoun	Attorney	Perry, Fla.
L. P. Hardee	Attorney	Gainesville, Fla.
C. C. Small	Attorney	Lake City, Fla.

CLASS OF 1911

Syd. L. Carter, Jr	Attorney	Gainesville, Fla.
Obie Crocker	County Judge	Vernon, Fla.
Aaron S. Crews	Attorney	Starke, Fla.
C. Craig Epperson	Attorney	Williston, Fla.
Floyd Green	Attorney	Bushnell, Fla.
Robert B. Huffaker	Attorney	Bartow, Fla.
Robert G. Johnston	Attorney	Kissimmee, Fla.
J. Lancelot Lester	Attorney	Key West, Fla.
Henry P. Osborne	Attorney	Jacksonville, Fla.
Charles O. Rivers	Attorney	Lake City, Fla.
Allen M. Roland	Teacher	Wildwood, Fla.
Cyrus Q. Stewart	Attorney	Ft. Myers, Fla.
Winder H. Surrency	Attorney	Jacksonville, Fla.
Leonidas E. Wade, Jr	Attorney	Jacksonville, Fla.

UNIVERSITY OF FLORIDA,

GAINESVILLE, FLORIDA

The University of Florida, supported by the State and Federal Governments, offers instruction in the following Colleges:

1. College of Arts and Sciences, leading to degrees of B.A. and B.S.
2. College of Agriculture, leading to the degree of B.S. in Agriculture.
3. College of Engineering, leading to the degrees of B.S. in Mechanical Engineering, B.S. in Electrical Engineering and B.S. in Civil Engineering.
4. College of Law, leading to the degree of LL.B.
5. Teachers' College and Normal School, offering courses leading to suitable degrees and certificates.
6. The Graduate School offers courses leading to the degrees of M.A. and M.S.

Beautiful Buildings and Attractive Campus.

Three more new buildings completed last year. Two additional, handsome structures nearing completion now, will be ready for occupancy September 17, 1912. Contracts for the History and Language Hall, to cost $40,000.00, and the George Peabody Hall, for which the Peabody Board gave the University $40,000.00, will be let July the 3, 1912. Increase of nearly 300 per cent in enrollment during the past three years shows fine optimistic and progressive spirit at the State University. Fine moral tone. Exceptional advantages at lowest cost.

For catalogue address the President of the University.

Vol 7 May 1912 No 2

CIRCULAR 3 JUNE, 1912

UNIVERSITY OF FLORIDA

OFFICE OF

Inspector of Nursery Stock

GAINESVILLE

Additional Rules and Regulations and Modifications Adopted by the Board of Control

Issued under the direction of the Board of Control by the Inspector of Nursery Stock

Copies of this Circular may be obtained free by addressing the Inspector of Nursery Stock, Experiment Station Building, Gainesville, Fla.

Pepper Pub. & Ptg. Co., Gainesville, Fla.

BOARD OF CONTROL

P. K. YONGE, Chairman, Pensacola.

T. B. KING, Arcadia.

E. L. WARTMANN, Citra.

F. P. FLEMING JR., Jacksonville.

W. D. FINLAYSON, Old Town.

INSPECTOR OF NURSERY STOCK

E. W. BERGER, Ph.D. Previously Entomologist Fla. Agr. Expt. Station.

ADDITIONAL

Rules, Regulations, and Modifications Adopted by the Board of Control in Accordance with Chapter 6156, Laws of Florida, at a Meeting Held in Jacksonville on April 8, 1912. In Force After June 1, 1912.

MEXICAN COTTON BOLL WEEVIL.

MANGO WEEVIL.

IRISH POTATOES.

FRUIT FLIES.

EXCEPTIONS TO RULE 1 (NURSERY INSPECTION CIRCULAR 1).

RESOLUTION OF BOARD OF CONTROL

Jacksonville, Fla., April 8, 1912.[1]

Under the provisions of Chapter 6156, Laws of Florida, 1911, the Board of Control considered the Additional Rules and Regulations and Modifications for Nursery Stock hereinafter set forth. The said Additional Rules and Regulations and Modifications were read section by section and as a whole. On motion of Mr. Wartmann, seconded by Mr. King, and unanimously carried, the Board of Control hereby makes, adopts and promulgates the following just and reasonable Additional Rules and Regulations and Modifications for the government of the inspection, certification, sale, exchange, transportation and introduction of nursery stock, trees, shrubs, plants, vines, cuttings, scions, grafts, buds, seeds, pits, bulbs, roots, or parts thereof, infested or infected, or suspected of being infested or infected, with injurious insects or other plant pests, or injurious fungus, bacterial or other plant diseases; and the Board of Control hereby declares the said Additional Rules and Regulations and Modifications necessary to prevent the introduction, increase or dissemination of said insects, pests and diseases, and that the same shall be in force after June 1, 1912.

MEXICAN COTTON BOLL WEEVIL

Rules and Regulations Governing the Transportation, Importation and Exchange of Articles Infested or Suspected of Being Infested with the Mexican Cotton Boll Weevil.

17. That in order to prevent the introduction of the Mexican Cotton Boll Weevil (*Anthonomus grandis*) into non-infested territory in the State of Florida, from any region in Florida or from any other states and countries where the same is known to exist, the articles listed in Rule 18, during the period of prohibition applying to each, shall not at any time be brought into non-infested territory in the State of Florida from infested territory, or from any point situated within 20 miles of the area known to be infested by the boll weevil.

Provided that, between January 15th and July 15th of any year, shipments of the hereinafter named articles, whether by public or private conveyance, originating within or ginned within a zone 20 miles in width immediately adjoining, but outside of the area of the weevil infestation, may be made to points not more than 40 miles outside of the known line of infestation as last officially determined and announced.

18. *Articles prohibited.†

1. Seed Cotton;
2. Cotton Seed;
3. Seed Cotton Sacks, cotton seed sacks and cotton pickers' sacks, any of which have been used within eight months for any of the purposes indicated;
4. Cotton Seed Hulls between August 1st and December 31st;
5. Spanish Moss and Corn in Shuck between October 1st and June 30th;
6. Living Weevils or weevil stages or weevil work in possession of any person outside of infested territory except a qualified Entomologist;
7. Household goods containing any of the foregoing during the period of prohibition applying to each;
8. Sugar Cane when not cut back and stript of its leaves;

Where no time limit is specified, the restriction is continuous.

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*This list of items was unanimously recommended by the Association of Cotton States Entomologists at a meeting held at Atlanta, Ga., December 5th and 6th, 1911. No. 8 was added to list by Florida.

†Articles not prohibited.

In order to remove all doubt upon a number of points, it is particularly stated that there is no restriction upon any of the following list of nine items at any season. Unanimously recommended by the Association of Cotton States Entomologists.

1. Baled Cotton, flat or compressed;
2. Linters and loose cotton lint;
3. Cotton seed meal, cake or oil;
4. Corn shelled or in the ear with shuck removed, oats or any other seed except cotton seed;
5. Cotton seed shown by affidavit to have been sacked continuously for nine months or more;
6. Cotton seed for planting purposes after fumigation with carbon di-sulphide by a competent entomologist;
7. Hay;
8. Empty freight cars;
9. Sugar Cane when cut back and stript of its leaves (Added to list by Florida).

19. (a) That shipments of the articles prohibited in Rule 18, originating outside of territory infested by the Mexican Cotton Boll Weevil and outside of the 20 mile safety zone, may be made at any time, without certificate or affidavit, to any part of Florida.

(b) That these Rules and Regulations shall not apply to shipments into counties of Florida in which no cotton is being grown at the time the shipments are made. A list of the counties in Florida in which cotton is grown is herewith appended.‡

20. That, in order to meet the requirements of shippers of quarantined articles located in non-infested territory, and outside the safety zone of 20 miles, but who may find it necessary to have proper credentials to accompany their shipments to other states and portions of states not infested by the Mexican Cotton Boll Weevil, the system of affidavits and certificates recommended by the Association of Cotton States Entomologists in session at Atlanta, Ga., on December 5 and 6, 1911, and in use by the State of Alabama, is hereby adopted. Applications for certificates and forms of the affidavits to be employed should be made to the Inspector of Nursery Stock, Gainesville, Fla.

Affidavit Form A. No _____

AFFIDAVIT AND AGREEMENT RELATING TO THE MEXICAN BOLL WEEVIL

(To be executed by oil mill representatives)

_____

State of Florida, } Before me, _____
County of _____ } a Notary Public (Justice of the Peace) in and for said State and county,

personally appeared this day _____

who, after being by me duly sworn, deposes and says as follows:

That he is (title) _____ of (mills) _____

lacated at _____ County _____ Fla.
and that to his certain knowledge said oil mill has used to date during this oil mill season of 191_1_, cotton seed grown or ginned at or shipped from points or places in the following counties only: _____

_____

_____

In consideration of the issuance to said mill of a certificate allowing shipments of seed and cotton seed hulls to be made to points in territory not yet infested by the boll weevil, this party hereby agrees to the following conditions: 1. That upon request he will furnish the party issuing this certificate with a full and complete list of all localities from which seed has been

‡Counties in Florida growing cotton. Compiled from the Eleventh Biennial Report of the Commissioner of Agriculture of Florida, pp. 217-218 and 331; and other sources. This list is subject to revision by the Inspector of Nursery Stock.

Alachua, Baker, Bradford, Calhoun, Clay, Columbia, Duval, Escambia, Gadsden, Hamilton, Holmes, Jackson, Jefferson, Lafayette, Lake, Leon, Levy, Liberty, Madison, Marion, Nassau, Orange, Pasco, Putnam, Santa Rosa, St. Johns, Sumter, Suwannee, Taylor, Volusia, Wakulla, Walton, Washington.

secured this season. 2. That, during the life of said certificate, said oil mill will not draw seed from other territory that may be nearer to the area of weevil infestation than that mentioned in the foregoing statement of counties without first informing the party signing said certificate as to the proposed action. At all times seed may be drawn from counties located north and east of that in which said oil mill is located. 3. He will immediately surrender said certificate at the call of the party issuing same. Certificate will expire July 31, 191___.

(Signed) _____

(Position or title) _____

Seal of Notary

Sworn to and subscribed to before me this _____ day _____, 191__

_____, Notary Public.

My commission expires _____, 191__

This form is used only by oil mills in application for a certificate.

OFFICIAL CERTIFICATE: BOLL WEEVIL NO. _____

Issued to _____ Date _____

Located at _____ County, _____ Fla.

To Whom It May Concern:

This is to certify that

The _____

located at _____ State of Florida,

through _____ has filed in this office an affidavit (File No. ____) stating that since August 1, 191__ said oil mill has used only cotton seed grown or ginned at or shipped from, points or places located in the following counties: _____

_____

_____

The maker of this affidavit furthermore agrees that said oil mill will at any time furnish upon request a complete list of all localities from which seed has been secured and that said mill will not draw seed from other territory which may be nearer to the area of weevil infestation than that mentioned above, without first informing the Inspector of Nursery Stock regarding the proposed action.

To the best of our knowledge and belief the territory from which this oil mill draws seed is safely outside of the area where the boll weevil is known to occur or is likely to occur this season.

In accordance with said affidavit, I hereby certify that cotton seed pro-

ducts of said oil mill are not liable to contain, or to aid in disseminating what is known as the Mexican Cotton Boll Weevil, and may therefore be safely admitted into uninfested states or territory. Such shipments are, however, always subject to the State Quarantine Regulations existing at point of destination.

This certificate should be kept on file by the party to whom it is issued. It becomes INVALID AFTER July 31, 191__, and may be revoked or recalled, for cause.

(Signed) _____

Inspector of Nursery Stock.

Shippers should provide an affidavit to accompany each WAY-BILL with every shipment made into any state quarantining only against INFESTED AREA. Blank forms for these affidavits may be obtained by requesting the number desired of the Inspector of Nursery Stock.

This form of certificate is issued only to oil mills.

AFFIDAVIT RELATING TO MEXICAN COTTON BOLL WEEVIL.

Based on Florida Certificate No._____

WAY-BILL No._____Car (Initials & No.)_____

Shipped to _____at_____

Shipped by_____from_____

Nature of shipment_____

State of Florida, } Before me,_____
County of_____ } a Notary Public (Justice of the Peace) in and for said State and County,

personally appeared this day_____who, after being by me duly sworn, deposes and says as follows:

That he is_____of_____

located at_____County_____Fla., and that to his certain knowledge said oil mill has used to date during this oil mill season of 191__-1__, cotton seed grown or ginned at or shipped from points or places in the following counties only:_____

_____

_____

He further states that said oil mill has filed with the Florida Inspector of Nursery Stock an affidavit setting forth the above facts and that said oil mill has received from said Inspector of Nursery Stock, and now has on file BOLL WEEVIL CERTIFICATE NO. _____ which is dated at Gainesville, Fla , _____, 191__.

Signed with (position or title)_____

Sworn to and subscribed to before me this

Seal of Notary

_____day of_____

_____, Notary Public.

My commission expires_____191__.

This way-bill affidavit form is used only by oil mills holding certificate.

Affidavit Form B. No......

AFFIDAVIT IN APPLICATION FOR CERTIFICATE RELATIVE TO BOLL WEEVIL.

Describe fully nature of shipment } .....
Offered for shipment by } .....from.....State of.....

Ship to.....at.....State of.....

State of Florida, } Before me,.....
County of..... } a Notary Public (Justice of the Peace) in and for said State and County,

personally appeared this day.....who, after being by me duly sworn, deposes and says as follows: That to his certain knowledge the shipment described and addressed as above shown originated within.....miles (direction).....from shipping point shown above, or was grown entirely within the following described area:

at.....County of.....State of.....

or within counties of.....State of.....
and that said shipment contains no seed cotton or cotton seed grown nearer to the area infested by the Mexican Cotton Boll Weevil than the territory described above, or beyond a radius of.....miles South, Southwest or West of shipping point mentioned above.

In case of HOUSEHOLD GOODS offered for shipment at points within counties wholly or partly included within the quarantined area, the shipper deposes as follows: That said shipment does not contain any of the following items: Seed cotton; cotton seed; seed cotton sacks, cotton seed sacks and cotton pickers' sacks, any of which has been used within eight months preceding date hereof; cotton seed hulls between August 1st and December 31st; Spanish moss or corn in the shuck between October 1st and June 30th, whether used as packing or in any other way; or any living stage or stages of the Mexican Cotton Boll Weevil or any specimens of their work, or sugar cane when not cut back and stript of its leaves, according to the best of his knowledge and belief.

(Signed).....

Sworn to and subscribed to before me this.....

Seal of Notary

.....day of.....191...

....., Notary Public.

My commission expires.....191...

This affidavit must be fully executed and then mailed to the Inspector of Nursery Stock in order to secure a CERTIFICATE authorizing shipment.

This form is used for individual shipments of household goods or cotton seed to oil mills, etc.

OFFICIAL CERTIFICATE: BOLL WEEVIL NO._____

Issued to_____ Date_____191__

Located at_____Co.,_____Fla.

For shipment of_____

Billing address _____

Accompanying Way-Bill _____Car (Initials & No.)_____

To Whom It May Concern: This is to certify that (Name) _____of_____Fla., has filed in this office an affidavit Form B (File No._____) stating that shipment described and addressed as above shown originated within_____ miles (direction)_____from shipping point shown above, or was grown entirely within the following described area:_____

_____

With HOUSEHOLD GOODS, there is not included any of the following items during periods specified: Seed cotton; cotton seed; seed cotton sacks, cotton seed sacks and cotton pickers' sacks, any of which has been used within eight months preceding date hereof; cotton seed hulls between August 1st and December 31st; Spanish moss or corn in the shuck between October 1st and June 30th, whether used as packing or in any other way; or any living stage or stages of the Mexican Cotton Boll Weevil, or any specimens of their work, or sugar cane when not cut back and stript of its leaves, according to the best of his knowledge and belief.

In accordance with said affidavit, I hereby certify that the above described shipment is not liable to contain or to aid in disseminating the Mexican Cotton Boll Weevil, and may be accepted and transported as shown above.

(Signed)_____

Inspector of Nursery Stock.

NOTICE: This certificate must be attached by railway agent to Way-Bill of shipment for which issued, and is INVALID for any other use. Agents should fill in Way-Bill and car numbers above.

This form is issued for all individual shipments and accompanies Way-Bill with shipment.

21. That shipments of household goods originating in infested territory when offered for transportation whether by public or private conveyance into non-infested territory, during the period of prohibition applying to each, must be accompanied by an affidavit stating that they contain none of the articles named under Rule 18. With railroad or boat shipments, this affidavit shall be attached to Way-Bill.

22. That interstate shipments of quarantined articles passing through a non-infested territory in the State of Florida, shall be made in tightly closed box cars, and the carriers shall exercise every reasonable precaution during transit and in making transfers to avoid the possibility of disseminating weevils thereby.

23. That no person except the Inspector of Nursery Stock at Gainesville, his authorized deputies, Entomologists and investigators of insect problems at the Experiment Station and University of Florida, the Woman's

College, the Colored School, the United States Department of Agriculture, and other Entomologists and investigators of insect problems connected with institutions of learning and investigation, of this State and the United States, may lawfully receive, transport, have or keep in his possession outside of the weevil infested area, any living stage (egg, larva, pupa, or adult) or any weevil work containing such stages of the Mexican Cotton Boll Weevil.

Provided that any person may send living specimens of the Mexican Cotton Boll Weevil or its work, when enclosed in strong, tightly wrapped and sealed packages, preferably of metal or glass, not easily broken, to any Entomologist or investigator of insect problems, qualified and permitted by the preceding paragraph to have such in his possession.

24. That all railroad, steamboat and express companies, or other common carriers, and all private parties operating vehicles, boats, and all other means of transportation, in the State of Florida, are especially enjoined to comply with the requirements of these Rules and Regulations and of the Laws of the State of Florida governing the same.

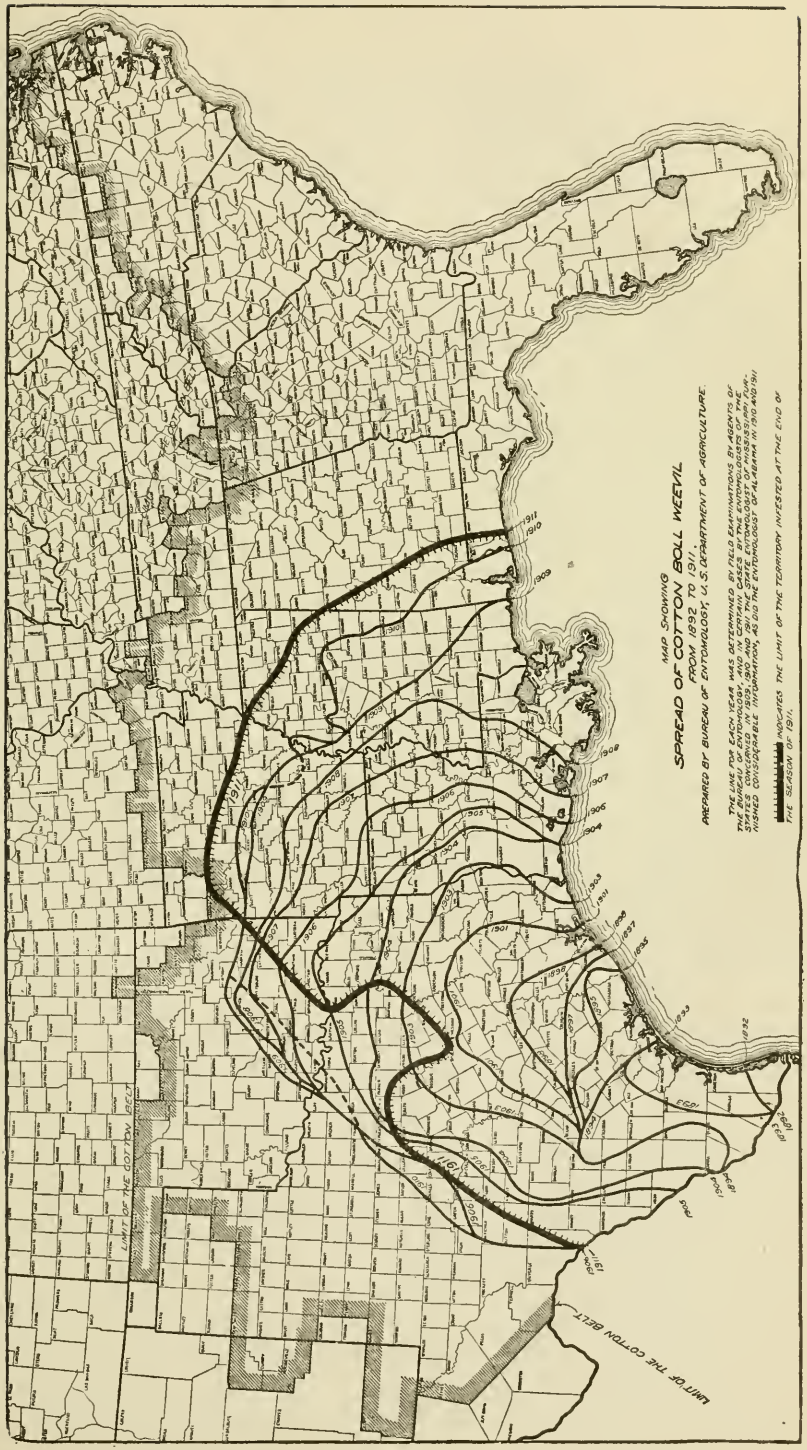
25. That a zone of 20 miles in width, immediately adjoining but out side of the area of actually known weevil infestation, is hereby established, which shall be known as the "20 Mile Safety Zone," and all Rules and Regulations herein promulgated shall apply to this zone, exactly as though it were known to be actually infested by the weevil; except as provided in Rule 17.

26. *That the Inspector of Nursery Stock shall at least once each year, or oftener if necessary, issue a circular of information to the Press of the cotton-growing counties, and others interested, setting forth the area and line of actual weevil infestation as determined by the United States Bureau of Entomology in cooperation with the states infested.

27. All shipments, as hereinabove specified, shall be subject to inspection and examination at the discretion of the State Inspector of Nursery Stock or of any of his duly authorized deputies, whenever such shipments shall be known or suspected to be infested with the Mexican Cotton Boll Weevil.

---

*The present line of weevil infestation in Florida extends due south from Pollard, Alabama. At the end of the dispersion period of 1911 (October), Escambia County and part of Santa Rosa County were found to be infested. The establishment of the "20 Mile Safety Zone" (Rule 25) locates the danger line 20 miles further to the east. See also the map on p. 11,—Inspector.


MAP SHOWING
SPREAD OF COTTON BOLL WEEVIL
FROM 1892 TO 1911.
PREPARED BY BUREAU OF ENTOMOLOGY, U.S. DEPARTMENT OF AGRICULTURE.
THE LINE FOR EACH YEAR WAS DETERMINED BY FIELD EXAMINATIONS BY AGENTS OF THE BUREAU OF ENTOMOLOGY, AND IN CERTAIN CASES BY THE ENTOMOLOGISTS OF THE STATES CONCERNED. IN SOME INSTANCES IT IS BASED ON RELIABLE REPORTS FURNISHED CONSIDERABLE INFORMATION AS TO THE ENTOMOLOGIST OF ALABAMA IN 1910 AND 1911.
INDICATES THE LIMIT OF THE TERRITORY INFESTED AT THE END OF THE SEASON OF 1911.
LIMIT OF THE COTTON BELT
LIMIT OF THE COTTON BELT

Reprinted by permission of Bureau of Entomology, U. S. Department of Agriculture.

THE MANGO WEEVIL

Rules and Regulations Governing the Importation, Transportation, and Exchange of Mango Seeds and Mango Fruit Infested or Suspected of Being Infested with the Mango Weevil.

28. That, in order to prevent the introduction, into Florida, of the Mango Weevil (*Cryptorhynchus mangifera*), the importation of Mango Seeds, except as hereinafter provided, is hereby prohibited.

29. That, since the seeds from imported mango fruit are frequently used for planting, the importation of mangoes infested with the Mango Weevil or with any other injurious insect, or infected with any injurious disease, is hereby prohibited. Healthy mango fruit may be imported without inspection and without certification.

30. That, in order to meet the needs of growers of young mango trees, importation of mango seed from countries not infested with the Mango Weevil may be made by special permit of the Inspector of Nursery Stock.

31. That all railroads, steamboat and express companies, and other common carriers, and all private parties operating vehicles, boats, etc., in the State of Florida, are especially enjoined to comply with the requirements of these Rules and Regulations, and of the Laws of the State of Florida governing the same.

32. All shipments of mangoes and mango seeds shall be subject to inspection and examination at the discretion of the State Inspector of Nursery Stock or of any of his duly authorized deputies, whenever such shipments shall be known, or suspected, to be infested with the Mango Weevil. (See also Rule 11, Nursery Inspection Circular 1.)

IRISH POTATOES

Rules and Regulations Governing the Transportation, Importation and Exchange of Irish Potatoes.

33. That in order to prevent the introduction of the "wart disease" (*Chrysophlyctis endobiotica*) of Irish potatoes into the State of Florida, the importation of Irish potatoes, affected with said disease, whether for planting or eating, from England, Wales, Scotland, Ireland, Germany, Hungary and New Foundland, or any State of the United States or foreign country as soon as it becomes infected with the "wart disease," is hereby prohibited.

34. That all potatoes intended for planting (so-called "seed potatoes"), when imported into Florida from another state or foreign country or from any locality not prohibited, shall have been immersed for at least one and one-half hours in a solution of formaline (made by mixing one pound 4% formaldehyde solution and 30 gallons water) for the purpose of destroying the spores of the potato scab (*Oospora scabies*) and other injurious diseases frequently found infecting potatoes. Any other treatment of equal effectiveness, such as fumigation with formaldheyde gas or dipping in corrosive sublimite solution, may be substituted for the formaline treatment, at the discretion of the proper Government or State Official under whose jurisdiction the treatment is made.

35. Each and every package of a shipment of "seed potatoes" shall have a certificate attached as per Rule 6 (Nursery Inspection Circular 1). This certificate shall also state that the potatoes have been treated with formaline, formaldehyde gas, or corrosive sublimite as previously directed.

36. Each and every package of a shipment of "seed potatoes" shall have conspicuously marked upon it the place where the potatoes were grown, shipping point, consignor, consignee, and destination.

37. Until further notice is given, potatoes grown in Florida need not be inspected or treated, but may be exchanged and transported without a certificate; provided, however, that they are free from injurious insects, pests and diseases. See also Section 4, Chapter 6156, Laws of Florida (Nursery Inspection Circular 1).

38. Transportation companies and private carriers are especially enjoined to aid in making these Rules and Regulations effective by refusing shipments not properly certified and by reporting uncertified shipments received, according to Rule 8 (Nursery Inspection Circular 1).

39. All shipments of Irish potatoes shall be subject to inspection and examination at the discretion of the State Inspector of Nursery Stock or of any of his duly authorized deputies, whenever such shipments shall be known, or suspected, to be infested with any injurious insect or pest, or infected with any injurious disease. See also 11 (Nursery Inspection Circular 1).

FRUIT FLIES

Rules and Regulations Governing the Importation, Transportation, and Exchange of Fruit Infested, or Suspected of Being Infested, with Fruit Flies.

40. That, in order to prevent the introduction of the Morelos Fruit-fly (*Anastrepha* (*Trypeta*) *ludens*) from Mexico or from any other state or country, or of the Mediterranean Fruit-fly (*Ceratitis* (*Halterophora*) *capitata*) from the Mediterranean Countries, Africa, Australia, Hawaii, or from any other state or country, the importation of any and all fruit infested with the injurious Morelos Fruit-fly, the Mediterranean Fruit fly, or any other fruit-fly, is hereby especially prohibited. Provided, that healthy fruit may be imported without inspection and without certification.

41. It is further provided, that when, in the discretion of the Inspector of Nursery Stock, the safety of the fruit industry in the State is endangered, he may, thru the publication of a circular so stating, altogether prohibit the importation of fruit from any state or country infested with any of the injurious fruit-flies mentioned in Rule 40. Such prohibition shall remain in effect until revoked by the State Board of Control.

42. All shipments of fruit infested, or suspected of being infested, with any fruit fly, whether in transit, or in hand of the purchaser or consignee, shall be subject to inspection and stoppage in transit, and if found infested shall be deported and destroyed, upon the order of the Inspector of Nursery Stock, at the expense of the owner, consignor or consignee, or the person, firm or corporation transporting the same.

43. Transportation companies and private carriers are especially enjoined to comply with the requirements of these Rules and Regulations and of the Laws of the State of Florida governing the same.

EXCEPTIONS TO RULE 1

(Nursery Inspection Circular 1)

Provided, that, until further notice is given, or at the discretion of the Inspector of Nursery Stock, the plants and parts thereof listed herewith, when apparently free from injurious insects, pests and diseases, need not be inspected, but may be exchanged and transported without a certificate attached. These exceptions do not apply to any plants or parts thereof imported from foreign countries, nor from the possessions of the United States not on the mainland of North America. These exceptions do not imply that any less importance shall be placed upon the other Rules and Regulations, or upon Section 4 of the Law, Chapter 6156 *

EXCEPTIONS

Forest trees and forest shrubs when not grown in a nursery; seeds (except mango seed, and cotton seed in localities infested with the Mexican Cotton Boll Weevil); vegetable plants and other herbaceous plants; the roots, bulbs and tubers (for Irish potatoes see Rules 33 to 39) of vegetables and other herbaceous plants; cut flowers; pineapple plants when not grown in a regular commercial nursery and when free from mealy-bugs and other injurious insects and diseases.

---

*Violation of any Rule or Regulation adopted by the Board of Control in accordance with Chapter 6156, Laws of Florida, constitutes a misdemeanor, punishable by a fine not to exceed $500.00, or by imprisonment not to exceed six months, or both, in the discretion of the court (Sections 4 and 5, Chapter 6156, Laws of Florida, Nursery Inspection Circular 1).

Violations of all Rules and Regulations should be reported to the County Prosecuting Attorney and to the Inspector of Nursery Stock, setting forth the facts in the case —Inspector of Nursery Stock.

Vol 7 August 1912 No. 2

High School Manual

FOR

Florida

PREPARED BY

JNO. A. THACKSTON, Ph. D.

State High School Inspector

AND OTHERS

1912

Pepper Publishing and Printing Company

Gainesville, Florida

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FOREWORD.

For the purpose of answering the many questions of high school teachers and principals throughout the State concerning the standards set for high schools, their courses of study, requirements in the different subjects, daily programs, etc., this bulletin is issued. It has been prepared by those whose names appear at the heads of the outlines of the different subjects that follow and by myself, but it has received some of its most helpful suggestions from many high school teachers and principals throughout the State. It is hoped that high schools may find recommendations and suggestions herein that will be helpful to them in many ways. No pet theories of the State University, of any special high school or of any individual are herein set down. The recommendations are in substantial agreement with the best throughout the United States, but none of them are to be taken as final.

Any suggestions or corrections that the high school people throughout the State may make will be graciously received.

To those who so kindly wrote the outlines for the different subjects, and to the many high school teachers and principals throughout the State who rendered valuable aid by their wise corrections and suggestions, my sincere thanks are hereby expressed.

J. A. T.

CLASSIFICATION OF HIGH SCHOOLS.

In 1910 the high schools of Florida were classified by the State Board of Education as follows:

"High schools maintaining four years of study beyond the eighth grade of the common school system, a term not less than eight months in the year and employing at least three teachers, whole time, in the high schools, shall be schools of the First Class.

"The minimum course of study prescribed for a high school of the First Class is the minimum standard set by the Science and Latin Courses" outlined in this bulletin.

"High schools maintaining three years of study beyond the eighth grade of the common school system, a term not less than eight months in the year, and employing at least two teachers, whole time, and one teacher, part time, in the high school grades, shall be schools of the Second Class.

"The minimum course of study prescribed for a high school of the Second Class is the first, second and third years of the minimum standard set by the Science and Latin Courses" outlined in this bulletin.

"High schools maintaining two years of study beyond the eighth grade of the common system, a term not less than eight months in the year, employing at least one teacher, whole time, in the high school grades, shall be schools of the Third Class.

"The minimum course of study prescribed for a school of the Third Class is the first and second years of the minimum standard set by the Science and Latin Courses" outlined in this bulletin.

The teachers who carry on this high school work should possess a College degree from an approved college, or its equivalent. But if this much is not possible at the present, at least two years of standard college work or its equivalent should be required of all high school teachers.

Naming of Classes.

It has been suggested by many, and it is the practice of many of the best high schools of this and other states, that the high schools in Florida designate their different classes by calling them First-Year Class, Second-Year Class, etc., instead of Freshman Class, Sophomore Class, etc. This nomenclature is recommended by this bulletin. The last names have been used so long by the colleges, that it is not quite fair for the high schools to assume them.

COURSE OF STUDY.

The course of study for the high school is a great problem. It has vexed school authorities since the public high school became a vital part of the school system. It is still being discussed, for many problems similar to the following still face us in whatever direction we turn: Shall we graduate a pupil from the high school without his having studied Latin? (Even this still vexes a few principals in Florida.) Does the pupil need any foreign language? How much mathematics should be given? (The foreign languages and mathematics are considered by some as the sine qua non of an education. This notion is based upon the idea that they are indispensable for intellectual discipline. The world has too many great men who did not and do not know either of these for school people to continue such belief.) Should each pupil study some natural science? How many subjects should a pupil be required to take each week? How many recitations per day? Should each subject come every day? What about vocational training? Does it educate as other subjects? Will the college accept for credit such studies? (The high school is for the people and not for the colleges. This must be the first consideration when the course of study is being made out. All good colleges are coming to realize this and will accept for credit all work WELL DONE in the high schools.) What are the essential subjects that all pupils should take? And many similar questions continue to arise.

Out of the discussions of these many questions, certain definite plans have been agreed upon by the leading educators of the United States. In the first place, we find that Latin is no longer considered as essential in our course of study. In fact, it is a hindrance to the progress of many of our boys and girls. For those who desire it, it should be given. The Committee of Nine of the National Education Association on the articulation of high schools and colleges do not consider that any foreign language is necessary for a good high school education, even for the pupils who are

going to college; and of course those who are not going to college will not need it.

In every high school in Florida, with two or three exceptions, we find that four full years of mathematics are required of all students. This, as was said above, is occasioned by the belief in the great disciplinary value of mathematics. The leading schools have abandoned this notion and are requiring not more than two years. One year, the ninth grade is given to algebra, while the tenth is given to geometry. The Committee of Nine, referred to above, recommended and rightly so, that even these two years are not absolutely essential to a good education. The outline for mathematics, found in another place in this bulletin, recommends that the high schools of Florida rearrange their courses by putting geometry in the tenth grade instead of the eleventh and, if advanced algebra is to be given, give it in the eleventh grade instead of in the tenth as it is now given. This recommendation is based upon the experience of the majority of the best high school men in this country.

Each high school student should take at least one course in natural science, and this should be in the ninth or tenth grade. The same is recommended for social science (including history).

Four subjects at one time is the plan that "has been generally accepted in both theory and practice throughout the schools of the U. S." If more than four class exercises per day are given, no home work should be assigned in the fifth one, but the work should be covered in the class with the teacher. Such a plan is good.

If the course of study does not include more than four subjects for each year, each subject should be given every day. But if it should include five or more, the number of recitations for each subject should be so limited as to keep the total number for the week down to twenty-five. Five of these will not require preparation outside of the class.

Of all the above hours and periods, two laboratory (including manual training and domestic economy) periods will count as one class period.

Vocational training is here and is in many of our best

schools and to stay. Every school that is to be of most value to its community must in the near future put these practical subjects into its course of study. Teachers must get ready to teach them and communities must provide ways and means for establishing and sustaining them. Where well taught, they educate and discipline as surely and as thoroughly as the older subjects. The difficulty heretofore has been the lack of teachers for these subjects, but now, this difficulty is being removed rapidly by the introduction of these practical courses in our normal schools, colleges and universities, both in their regular course and in their summer schools. Every high school in Florida should at once, or just as soon as possible, put into its course of study agriculture, practical manual training and domestic economy. These are essential subjects for this agricultural and industrial State. This same suggestion should be applied to the two upper grades of the grammar schools. The leading colleges of the United States will accept for credit this work.

The essential subjects for every high school, according to the recommendations of the Committee of Nine, are "at least three units of English, one unit of social science (including history) and one unit of natural science." In every high school course, these subjects should be found, and should be required of all pupils who finish the high school course. Whatever other subjects that may be decided upon for the individual pupil, who goes through the whole high school, at least one other three-unit course should be taken, while the remaining fifteen, recommended by the Committee of Nine, or sixteen units should be made up of three, two and one unit subjects. If a foreign language is taken, at least two units should be covered. The same is true of mathematics. All of the subjects, except English, can get along with one unit each. Nothing less than one unit in a single subject, save, perhaps, in physiology and physical geography, should be allowed.

As appears in the courses of study in most of the schools of Florida, botany and zoology are each given half a year, thereby making them half-unit courses. This manual rec-

ommends that neither botany nor zoology be given alone for a full year or for a half year, but that biology, which should include plant, animal and human biology, should be the first course in biological science. If further work is desired in this science, then give an advanced course in either botany or zoology.

In accordance with the above suggestions, the following suggestive courses of study are recommended to the consideration of the school people of the State.

Science Course as Now Found in Florida Schools.

First Year		Second Year	
English	5	English	5
Ancient or English History	5	Ancient or Mediaeval History	5
Algebra	5	Algebra	5
Physical Geography	5	Zoology and Botany	5
	20		20

Third Year		Fourth Year	
English	5	English	5
Mediaeval or English History	5	U. S. History and Civics	5
Plane Geometry	5	Chemistry or some other subj't	5
Physics	5	Plane Trigonometry	5
	20		20

A Substitute for the Present Science Course.

First Year		Second Year	
English	5	English	5
Algebra	5	Geometry	5
Agriculture or Geography	5	Agriculture or Biology	5
Manual Training and Household Economy	5	Ancient History	5
	20		20

THIRD YEAR

English	5
Midiaeval and Modern Hist.	5
†Biology or Physics	5
Algebra ½ yr. and Plane Trig. ½ yr.	5
	20

FOURTH YEAR

English	5
U. S. History and Civics	5
Physics or Chemistry	5
‡Reviews	5
	20

†Whenever biology is mentioned an introductory course is meant which should cover plant, animal and human biology.

‡"Reviews" mean work that would fit the pupil to take the first grade teachers' certificate. The taking of these reviews is urged upon all those pupils who have any notion of teaching. For those who are not going to teach they will be very helpful and could be taken with profit by all students.

LATIN COURSE AS NOW FOUND IN FLORIDA SCHOOLS.

FIRST YEAR

English	5
Latin	5
Algebra	5
History	5
	20

SECOND YEAR

English	5
Latin	5
Algebra	5
History	5
	20

THIRD YEAR

English	5
Latin	5
Geometry	5
Physics	5
	20

FOURTH YEAR

English	5
Latin	5
Plane Trig.	5
History and Civics	5
	20

A SUBSTITUTE FOR THE PRESENT LATIN COURSE.

FIRST YEAR

English	5
Latin	5
Algebra	5
†Agriculture, Geog. or Biology	5
	20

SECOND YEAR

English	5
Latin	5
Geometry	5
Ancient History	5
	20

Third Year	
English	5
Latin, German, French or Spanish	5
Algebra ½ yr. Plane Trig. ½ yr.	5
‡Mediaeval and Modern History or Biology or Physics	5
	20

Fourth Year	
English	5
Latin, German, French or Spanish	5
U. S. History and Civics	5
Physics or Chemistry or *Reviews	5
	20

†Let majority of pupils choose subject to be taken by class if school can not give all subjects.

‡In the history in third year stress should be laid upon English history.

*If the student will choose Reviews in the fourth year in place of a science, then in the third year science should be taken rather than history. This would give two years of history and two years of science during the four years.

A Suggested Course of Study.

First Year	
English	4
Algebra	4
Manual Training and Household Economics	4
Geography	4
Commercial Arithmetic	2
Bookkeeping	2
Music	1
Drawing	1
	22

Second Year	
English	4
Geometry	4
Biology	4
Agriculture	4
Ancient History	4
Music	1
Drawing	1
	22

Third Year	
English	4
Foreign Language	5
Physics	5
Algebra ½ yr. and Trigonometry ½ yr.	4
History or Teacher Training	3
	21

Fourth Year	
English	4
Foreign Language	5
U. S. History and Civics	5
Chemistry or Teacher Training	5
Ethics	2
	21

For those schools where the practical in education dominates, in place of history in the second year manual training and household economics, or commercial arithmetic and bookkeeping may be placed. But where a more liberal training is demanded, the history should remain in the course as outlined.

If music and drawing have been given in the grades, they could be omitted here; except chorus singing. Should they be given, no work outside of class should be required.

It is not claimed that this is the best possible course that could be arranged, for the high school is too young to pretend to have worked out to an ideal its course of study—many more years of experience and study will be necessary to accomplish this, but, for the following reasons, this course should receive the consideration of school people.

In the first place this is, in fact, a practical course. And when we fully realize that more than seventy-five per cent of the boys and girls who enter the high schools in Florida quit school without ever entering the third year, we are convinced that a practical course is what we need. The directly practical for everyone, is put in the first year, because fifty per cent of the pupils there drop out of school without going further and enter the practical world. This course is for all the high school pupils and not merely for the five or ten per cent who are to enter college. This course, properly handled, will bring the communities to the school and carry the school into the homes of the people. The other courses have not done this as it should be done.

With such a course more pupils will be induced to attend the high school than otherwise would. They will see something in the high school worth while from their point of view.

During the first two years, all of the subjects, save foreign language, that are given in our best high schools, are opened up to the pupils, and thus one of the main purposes of the high school—the helping the pupil to find in what line his or her talents lean—is realized. The talent or aptitude for language is found out thru the study of English.

If the pupil is to attend college after high school is fin-

ished, he will find that this course has prepared him to enter most of the better ones. When more than two units of a foreign language are required, privilege of making up such a deficiency is usually allowed by the colleges.

The subjects in this course are well arranged psychologically. In each year mind-work and hand-work go together, and the pupil's interests and welfare are kept as the controlling forces rather than the college entrance requirements.

The only objection to this course is that it will require a little more skill on the part of the teacher than the regular course where he has only four subjects during the day and year. But its great advantages outweigh this objection.

TEACHERS IN THE HIGH SCHOOL.

The most important factor in the education of children is the teacher. Buildings and equipments are necessary and the better they are the better the school, if it is in the hands of a good teacher, but a real teacher, one who loves his work and has trained and is training himself for his special work, can take a poor building and poorer equipment and do more for the child than a poor teacher can do for him with all material conditions of the very best and most modern. Some of the poorest schools in Florida are those that have magnificent buildings and the most elaborate equipment, but are in need of teachers who know how to use these things for the general advancement of the pupils. It is positively certain that the teacher makes the school what it is. Many of our schools need better buildings and equipment, and it is a happy fact that Florida now has her high schools pretty well fixed in this line, but the greatest need is more trained teachers. First of all a community should employ with its school funds a corps of trained and skilled teachers, and then, with what money that is left, it should build schoolhouses and properly equip them. A few districts have so hampered themselves by the erection of unnecessarily costly buildings, that for the next six or eight years they will be forced to employ inferior teachers only at a low salary, thus forcing the children of that community to sit for the next six or eight years at the feet of someone who does not know how to teach them. This is a grave mistake. The employment of good teachers, as was said above, should receive the first consideration in every high school in Florida.

For a teacher to be qualified to instruct pupils of high school grade, he should, besides being a high school graduate, have taken at least two years in a good standard college. The requirements made by the Association of Colleges and Secondary Schools of the South, demand that high school teachers be college graduates or else they must have taken work equal to that grade. Many of the high school boards of Florida now employ no one save

college graduates as teachers. But some of the smaller schools, and a few of the larger, still feel that a first-grade-certificate teacher is well enough educated to teach all the high school subjects. This is an error that time must overcome. The first grade certificate does not pretend to stand for anything save ability to teach in the grammar and primary schools. The State certificate does not represent in scholarship, on the part of one who holds it, more than a high school education. So we see that every teacher in the high school should be qualified even better than what the State certificate stands for.

Another existing condition that should receive the attention of school boards and communities is the constant changing of teachers. If a teacher remains in a place three or four years it is rather remarkable. An annual change is the ordinary thing. In some schools this annual employment of teachers effects every teacher in the school. Each year the school is in the hands of strangers who necessarily find that it takes at least a month or more of the school year to get well started in the work. If possible, this condition should be stopped. It must be stopped by that town or school if it is to do its duty by its children.

Teachers for special departments like manual training, agriculture, domestic science and commercial work, should be selected not alone for their special skill in these departments, but also for their ability to teach one or more other high school subjects. The small high school with only two, three or four teachers cannot afford to employ a special teacher for these new subjects. Today many teachers are training themselves to carry on this vocational work and at the same time along with it one or more other high school studies. This is a wise policy on the part of the teachers. If the school boards who have charge of our high schools would see to it that at least one or two of their women teachers who have an aptitude for the work of domestic economy and commercial studies, and one of their men teachers who has an aptitude for manual training and agriculture, attend a summer school where good courses in these subjects are given, and take from six to twelve weeks spe-

cial work in them, all of our high schools would be supplied in a year's time with teachers who could make a good beginning in teaching these subjects. After two or three summers of such work Florida would be supplied with teachers of these subjects at no extra expense, except, perhaps, part of the expense of the summer trips of those who are sent away to take these courses. Many teachers in Florida are perfectly willing to thus fit themselves for this special work if the boards of education and communities will co-operate with them in this way.

Many high school teachers in Florida are too ambitious, and very often undertake to do too much. A high school that undertakes to do four years' work should employ at least two teachers, who devote all of their time to its work. The school where one teacher devotes his whole time to the high school, while another devotes only part of his time, should not attempt more than a two- or three-years' course.

The high school that employs two teachers should employ one man and one woman, rather than two men or two women. In every high school where both boys and girls are taught the teaching staff should not be composed of one sex to the exclusion of the other.

The one-teacher school should not attempt to do more than the work of the first and second year. It is far better to do well one year's work, rather than attempt two or three and do all of them poorly. Poor work in high schools is a crime against both the child and the teacher.

Daily Programs.

The daily programs that follow are merely suggestive. They are made out for the suggested courses of study, but can, by a few changes, be made to suit the old courses of study. As will be seen, each class period is forty minutes long. This is a good length for a high school period. No regular recitation should be shorter than forty minutes. If there be sufficient time, certain periods may be lengthened five or ten minutes.

These programs do not require more than eight forty-minute periods for a teacher per day. Our best schools do

not require more than five or six periods per day for each teacher. Eight daily periods are as many as any teacher ought to be required to attempt. And under no circumstance should this amount of work be undertaken in a four-year high school, except where departmental teaching is carried on. A few schools still cling to the notion that one teacher should teach all the first- and second-year classes, while the other teacher should have all the third- and fourth-year classes. This is a great mistake in high school work and should not be allowed. Departmental teaching is much easier and better for both child and teacher.

By combining certain classes, as is suggested in the two-teacher programs, three teachers will be able to offer both the science and the Latin courses.

Daily Program for One Teacher for Suggested Latin Course.

8:45-9:00—Opening Exercises.
9:00-9:40—English II.
9:40-10:20—English I.
10:20-10:30—Recess.
10:30-11:10—Math. II.
11:10-11:50—Math. I.
11:50-12:50—Luncheon.
12:50-1:30—Hist.
1:30-2:10—Science I.
2:10-2:20—Recess.
2:20-3:00—Latin II.
3:00-3:40—Latin I.

Daily Program for Two Teachers for Suggested Science Course.

Principal.	First Assistant.
8:45-9:00—Opening Exercise.	Opening Exercise.
9:00-9:40—	English III and IV.*
9:40-10:20—Math. II.	English I.
10:20-10:30—Recess.	
10:30-11:10—Math. III.	Reviews.

11:10-11:50—Math. I.	English II.
11:50-12:50—Luncheon.	
12:50-1:30—Science III.	History IV.
1:30-2:10—Science I and II.†	History III.
2:10-2:20—Recess.	
2:20-3:00—Science IV.	History II.
3:00-4:00‡—Manual Training I.	Domestic Economy.

*Combine English III and IV and have the work of the different years alternate, e. i. English III will come this year and English IV next year.

†Like Eng. III and IV.

‡This period should be used for laboratory work for Science III and IV.

Daily Program for Two Teachers for Suggested Latin Course.

Principal.	First Assistant.
8:45-9:00—Opening Exercise.	
9:00-9:40—	English III and IV.*
9:40-10:20—Math. II.	English I.
10:20-10-30—Recess.	
10:30-11:10—Math. III.	Foreign Language IV.
11:10-11:50—Math. I.	English II.
11:50-12:50—Luncheon.	
12:50-1:30—History II.	Foreign Language III.
1:30-2:10—Science I.	History IV.
2:10-2:20—Recess.	
2:20-3:00—Science IV† or Reviews.	Latin II.
3:00-3:40—Science III or History III.	Latin I.

*Combine and alternate, yearly, Eng. III and Eng. IV.

†Science IV's laboratory work should continue thru the last period.

HIGH SCHOOL LIBRARIES.

Every high school in Florida should be supplied with a good working library. Nothing, in the way of equipment, can add more to the well-being and advancement of a school than a well selected and properly located and arranged library. If boys and girls are to be taught to love and use books, and this is most certainly one of the purposes of schools, schools must provide themselves with libraries. In no other way can such instruction and love come. The use of textbooks only will cause pupils to think of all books as tasks instead of wholesome, uplifting and inspiring companions as they really are when properly appreciated and used.

In selecting the high school library, care must be had in seeing that it is well proportioned, and not filled with "a motley array of old textbooks, out-of-date encyclopedias and miscellaneous volumes from the attics of well-meaning friends" and government reports. A good high school library will contain the following classes of books: Dictionaries, encyclopedias, atlases, gazetteers, almanacs, biographies, literature, books of adventure, travel, exploration, etc., books that deal directly and especially with the subjects found in the course of study, professional books for teachers, and a good newspaper and a few of the best magazines. A few books from each one of these classes placed in the most accessible place in the school building for all pupils and then supervised and properly directed by the teacher, will produce wonderful results. Too many libraries in the schools of Florida are not as accessible as they should be for the securing of the best results. When a book is needed for reference in class or study, it should be at hand; if it is not, more than likely the reference will never be looked at. Not only is this true, but teachers should show pupils how best to use reference books when they are needed.

Many valuable books for the library will be found listed in other parts of this bulletin. Below are given a few books for general reference:

Webster's New International Dictionary, $12—Merriam, Springfield, Mass.

New International Encyclopedia (22 vols.), $93—Dodd, Meade & Co. For this encyclopedia year-books are issued.

Rand McNally Indexed Atlas of the World (2 vols.), $18.50.

World's Almanac (yearly), $ .25—The N. Y. World, N. Y.

Brewer—The Reader's Hand Book.

Dictionary of Phrase and Fable—Lippincott, Philadelphia.

For a most carefully selected list of books for small libraries, high schools should secure a copy of the A. L. A. Catalog for 1904, $1—Government Printing Office, Washington, D. C.

For a supplement to the above get A. L. A. Catalog from 1904-1911—A. L. A. Publishing Board, 78 E. Washington St., Chicago.

These two books will be of great value to the teacher in selecting new books.

Roget, P. H.—Thesaurus of English Words and Phrases, Latest Edition, Longmans.

United States Statistical Abstract.

United States Congressional Directory (2 vols.). Get through your congressman.

Abstract of the Twelfth Census (2 vols.). Get through your congressman.

AGRICULTURE.

By J. J. Vernon, M.S.A.,
Dean of the College of Agriculture, Professor of Agronomy,
The University of Florida.

Strong courses in agriculture should be offered by our high schools. Many of the evidences demonstrating the value and importance of other courses intended to prepare for professional or business life, are equally weighty when urging the necessity for the study of agriculture preparatory for life work upon the farm. There are other and stronger reasons.

Nearly 50% of our population are rural. About 80% are almost wholly dependent upon agriculture for their living. The farmer and the manufacturer are the two great factors in the creation of wealth, and therefore of incalculable importance to every business and social interest whether in city or country. A careful, unbiased survey of rural conditions—the home, the church, the school, the roads, social life, the very spirit and attitude of the rural people on matters appertaining to the education of their own children—proclaim the weaknesses of the present system of education as carried out, if no stronger indictments are made.

I have no word to utter against culture, real heart culture, but I have not words sufficiently strong with which to condemn a system of education or the method of carrying out that system, that develops a desire for a high standard of living and at the same time fosters a false pride—a self-superior estimation, resulting in the refusal to perform wealth-creating labor, or that renders pupils incapable of honorably satisfying their legitimate desires.

When practically every one expects the doctor, the lawyer, the minister and the teacher to be especially educated and trained for their life work, it seems a travesty on justice that we must contend for educational advantages spe-

cially suited to the need of our rural people in preparing them for their life-work on the farm.

Agricultural education for the prospective farmer is not a mere dream. Germany has included agriculture in the curriculum of her schools for more than forty years, and with what splendid results! The German people carry a burden of taxation that would appall our people. This is only one of the results. Belgium instituted a complete system of Agricultural High Schools some years ago when Germany placed a prohibitive protective tariff upon Belgium grain and hay. As a result Belgium today leads the "dairy world."

Shall the city and town high school offer a course in agriculture? Yes, by all means, provided that city or town is created and maintained largely by rural people. Agriculture should have a prominent place in the curriculum of the high school of the city or town supported largely by rural taxation either direct or indirect or both combined. To make myself perfectly clear, by indirect taxation I refer to the toll taken by the city or town upon the usual commerce and trade, resulting in the centralization of wealth in city and town in the form of splendid buildings, beautiful churches, modern school buildings, paved streets and sidewalks, sanitary water supply on tap in the homes, electric lights, etc., etc.—the manifestations of modern home comforts. A small part of the great debt these cities and towns owe the rural people, upon whom their existence depends, can be paid by maintaining strong courses in agriculture in the high schools, available without additional cost, to every rural boy and girl who has completed the Grammar Grade work in the little one-room country school. Economically speaking, such cities and towns belong to the rural people, because they created the wealth that builded them. The relations between city and country should be mutual, and I believe, our rural supported cities and towns will find their prosperity best maintained by adequate agricultural education for the rural boys and girls—fitting them for more effective service in their life-work on the farm. Agricultural education is essential to a rising rural civilization, but it is suicidal for the city or town to ignore the fundamental

economic relations existing between them and their rural feeders. Shall the city or town high school offer a strong course in agriculture, or shall other means be provided?

When agriculture is taught in the city and town high school, city boys and girls may elect therefrom, with pleasure and with the broadening of their education. Furthermore the city boy will have the opportunity to break away from city life and return to the country with some hope of making a success of farming. Country life as it appears to him, with its long hours, its toil and its drudgery, does not appeal to him. But equipped with an agricultural education, he can look forward to a life on the farm, shorn of most of the exacting toil and drudgery and with hope of successfully building up a farm home that would fill his heart and life with contentment. Many city superintendents are including agriculture in the courses for city boys and girls, purely for its educational and broadening values. They do not hope to make farmers and farmers' wives of their pupils, but they have found here a splendid new field which lends itself unusually well to the development of the functions of the mind and at the same time deals so largely with the fundamental principles underlying one of our most important industries.

There are something like a thousand schools of Secondary Grade giving instruction in agriculture in the United States, and the number is rapidly increasing. What of the past and what of the future of Florida?

Qualifications of the Teacher.

Additional to the usual requirements, the instructor in agriculture should have the following qualifications:

1. An abiding belief in the practical work of instruction in agriculture and a working knowledge of the relations that should exist between the school and the farm.
2. Training in methods of instruction in agriculture.
3. A collegiate course in agriculture.
4. Practical experience on the farm.

The qualifications are placed in the order of their importance.

Equipment.

An ideal equipment for giving instruction in agriculture would include a well equipped instructional farm of at least 160 acres with its quota of houses, barns, sheds, irrigation system, live stock, farm machinery, orchards, gardens, etc.; well equipped laboratories in soils and fertilizers, field crops, farm motors and farm machinery, wood and iron work, stock-judging pavilion, library and reading room; and commodious well lighted and well ventilated class and demonstration rooms.

A very helpful course of instruction may be given with a very small amount of equipment. Neighboring farms may be used instead of the high school farm, with the consent of the owners, for a certain amount of illustrative material. This may be brought to school or the pupils may visit the farms at certain periods. A small plot of a few acres near the high school may suffice for garden and orchard work. If the pupils are willing they can make most of the equipment for simple demonstrations in soils and fertilizers, and seeds and field crops. The iron and wood-work can be done with a small outlay for tools, and this work in the beginning may be confined almost wholly to making equipment for the other laboratory work. With willing pupils and an appropriation of $100.00 to be expended principally on raw materials, equipment can be installed for demonstration of the simple principles.

Interest developed in this way will lead to the installation of more adequate equipment.

Methods.

The instruction should include textbooks, lectures, laboratory exercises, demonstration experiments, colateral reading and research, essays and booklet work and farm work and observations.

Throughout the work the subject of most practical value on the farm should be given prominence and the relations of the farm and farm community to other institutions and other communities, or sections, should be brought out either

in the agricultural classes or in the Physical Geography, History or Civic classes. Much valuable information relating to agriculture may be given in other classes if the teachers have the broad knowledge necessary and the inclination so to do. This is especially true of Botany, Physics, and the subjects named above.

At least half of the time should be devoted to laboratory and field work. The textbook should be made a basis for the study, but every principle demonstrated in the laboratory and field will become a vital self-demonstrated truth that will take root in the minds of the pupils as no class discussion, however full and clear, can do.

A principle observed or deducted by a pupil will be worth more to him than much information consisting of mere statements of facts.

Textbooks.

Textbooks suited to high school needs are not yet available. Most books now available try to include all the subjects under one cover. A series of books should be written for high school use wherein a book will treat only one division of agriculture. The following outline or divisions into which agriculture is usually separated by authorities, and partial list of subjects, will illustrate this need:

Agriculture.

I. Agronomy—
   1. Soils.
   2. Fertilizers.
   3. Field Crops.

II. Zootechny—
   1. Horses.
   2. Cattle.
   3. Hogs.
   4. Sheep.
   5. Goats.
   6. Poultry.

III. Dairying—
   1. Care and management of the dairy herd.
   2. Milk production.

IV. Agrotechny—
1. Butter making.
2. Cheese making.
3. Ice cream.
4. Canning.
5. Preserving.

V. Horticulture—
1. Orchard Fruits.
2. Small Fruits.
3. Olericulture.
4. Ornamental Scrubs and Trees.
5. Floriculture.
6. Landscape Gardening.

VI. Agricultural Engineering—
1. Farm Motors.
2. Farm Machinery.
3. Irrigation.
4. Drainage.
5. Farm Iron Works.
6. Farm Wood Works.
7. Farm Buildings.
8. Roads.
9. Fences.
10. Farm Water Supply.

VII. Rural Economics—
1. Land Tenure.
2. Farm Management.
3. Markets.
4. Farm Bookkeeping.

VIII. Agricultural Education—
1. History of Agricultural Education.
2. Methods.
3. School Systems.

IX. Agricultural Extension—
1. Farmers' Institutes.
2. Movable Schools.
3. Correspondence Courses.
4. Instruction Trains.
5. Boys' Corn Clubs.
6. Girls' Gardening and Canning Clubs.

X. Research.

The following books may be suggested:

Textbooks.

Fundamentals of Agriculture, edited by J. E. Halligan, D. C. Heath & Co., N. Y.

Principles of Agriculture, by L. H. Bailey, The Macmillan Co., Atlanta, Ga.

Books Helpful to Teachers.

Elementary Principles of Agriculture, by Ferguson & Lewis, Ferguson Publishing Co., Sherman, Texas.

Agriculture for Beginners, Burkett, Stevens and Hill, Orange-Judd Co., N. Y.

Practical Agriculture, by J. W. Wilkinson, American Book Co., Chicago, Ill.

Nature-Study and Life—by C. H. Hodge, Ginn & Co., Chicago, Ill.

Farm Boys and Girls, by W. A. McKeever, The Macmillan Co., Atlanta, Ga.

Rural School Agriculture (Manual of Exercises), by Charles W. Davis, Orange-Judd Co., N. Y.

Farmers' Bulletins, Free—Address U. S. Department of Agriculture, Washington, D. C.

Year Book, Free—Address your Congressman.

Florida Agricultural Experiment Station Bulletins, Free—Address Director P. H. Rolfs, Gainesville, Fla.

Reports Florida State Commissioner of Agriculture, Free—Address Hon. W. A. McRae, Commissioner of Agriculture, Tallahassee, Fla.

Bricker—The Teaching of Agriculture in the High School, Macmillan. This is a very suggestive book, and should be in the hands of every teacher of agriculture in the high school.

BIOLOGY.

By H. S. Davis, Ph.D.,
Professor of Zoology and Bacteriology,
The University of Florida.

It has long been my conviction that instead of separate courses in botany and zoology, each for one-half year, it would be much better to give a course in general biology extending throughout the year. The subjects studied would be much the same in either case, but there are, I believe, distinct advantages in the biological method of treatment. It has been my experience that, as the result of teaching botany and zoology as distinct sciences, the students are very apt to get exaggerated and erroneous ideas regarding the difference between animals and plants. All too often they come to look on plants and animals as entirely distinct, having little, if anything in common. This is, of course, an entirely mistaken idea, for the fundamental functions of all living things, animal and plant, are very similar. It should be understood that biology, the study of living organisms, is a science founded on certain underlying and basic principles.

The primary object of such a general course is the understanding of man and therefore physiological principles should be especially emphasized. The functions of animals and plants, movement, irritability, nutrition, respiration, excretion, and reproduction; the interactions of animals and plants and their economic relations; all these, especially as they relate to man, should form an essential part of such a course.

In my opinion the average elementary course in botany and zoology places far too much emphasis on classification and structure. So much time is given to the identification of plants and animals that the student gets the idea that it is the end and aim of the whole course. Of course nothing could be farther from the truth. It is all very well to know the name of an animal, but after all what more does the

student know about the real animal after this has been determined? Names are necessary, they form convenient handles by which the different species may be known, but that is all; a number would do as well.

It is much the same in the study of structure. A few dead and preserved forms are dissected more or less carefully, a few drawings made, and the study of that particular form is completed. As a matter of fact that should only be the beginning. It should never be forgotten that the real aim of biological science is the study of the living organism, not the dead alcoholic specimen. The study of structure is necessary and desirable, but the study of the structure alone of a few isolated types is not biology. Structure and function go together, one is dependent on the other. The activities and functions of the parts of an organism and of the organism as a whole should be studied in connection with their structure. In fact, especial emphasis should be placed on the activities of organisms, their fundamental physiological processes, their reactions, habits, instincts, reproductions, etc.

For obvious reasons it is necessary to use the so-called type method of instruction, otherwise the student will be lost in the multiplicity of forms which he is expected to study. Right here, I believe, is one of the most serious objections to many textbooks. So many forms are treated that the student gets only a much confused and hazy idea of any one form. But while it is necessary to select a few types for rather thorough study, it should be remembered that they are chosen simply as examples, and by continued comparison the student should be made to see wherein the structure, functions and activities of the particular form which he is studying is like or unlike those of other organisms. In short the course should be comparative, and so arranged as to elucidate the great fundamental laws of nature. The similarities of different organisms should be emphasized as well as the points in which they differ.

Finally, the basic principle of structure and physiology, having been thorougly understood through observation and experiment on plants and animals, should be applied to man,

and will result in a clearer conception of his structure and physiology than can be acquired in any other way.

In such a course as advocated above it will probably be best to devote the earlier part of the course chiefly to the study of plants, later taking up a few representative forms of animals, comparing their structure and activities with those of the plant already studied.

While, of course, the logical course is to begin with the simpler forms and work toward the more complex, it is probably better in the case of students as immature as those in the high school to begin with forms which are more or less familiar, even though the logical order from the simple to the complex has to be sacrificed. In the case of animals the insects are perhaps, all things considered, the best forms with which to begin. They are always easily procured, can be easily reared and kept in captivity so that the development and activities of a living animal can be readily studied. In addition to insects the following animals should be studied, both living and preserved: crayfish, earthworm, clam or snail, hydra, one or two protozoa such as paramecium and amoeba, and a fish or frog. There is not a school in the State where these animals cannot be readily procured in the living condition with little trouble. In case the seashore is available various marine forms can be substituted to advantage for some of those mentioned.

Three kinds of work should be included in the course. These three kinds, in the case of animals, are: (a) observations in the field covering the habits and behavior of animals, and their relations to their physical surroundings, to plants, and to each other; (b) work in the laboratory, consisting of the study of animal structures by dissection and the observation of living specimens in cages and aquaria; and (c) work in the recitation room where the significance and general application of the observed facts are considered and correlated with the information gained from textbooks.

The apparatus needed for such a course is simple and inexpensive. A few simple dissecting instruments, cheap dissecting microscopes, and one or two medium priced compound microscopes will, in most cases, be all that are neces-

sary. To these should be added a few small aquaria and breeding cages, which, if necessary, can usually be constructed or improvised at small expense.

Apparatus may be obtained from either of the following houses: Arthur H. Thomas Co., 1200 Walnut St., Philadelphia, Pa.; Central Scientific Co., Chicago, Ill.

Suggested Textbooks.

Bailey & Coleman—First Course in Biology, 1908, Macmillan Co.

Hunter--Essentials of Biology, 1911, American Book Co.

Each of the above books are good introductory courses in biology.

Sharpe—Laboratory Manual in Biology, American Book Co.

Whitney, Lucas, Shinn & Smallwood—A Guide for the Study of Animals for Laboratory, Heath.

Linville & Kelley—A Textbook in General Zoology, Ginn.

Kellogg—Elementary Zoology, Henry Holt & Co.

Davenport—Introduction to Zoology, Revised Ed., Macmillan.

Jordan, Kellogg & Heath—Animals, D. Appleton Co.

Books for the Teacher and Library.

Lloyd & Bigelow—The Teaching of Biology, Longmans.

Hodge—Nature Study and Life, Ginn.

The Nature Library, 15 Vols.—Doubleday, Page & Co. Some of the books in this series are excellent.

BOTANY.

W. L. Floyd, M.S.,
Professor of Botany and Horticulture,
The University of Florida.

In teaching Botany we will do well to follow the Outline for a Course in Botany for the High School prepared by the Committee on a Course in Elementary Botany, appointed by the Botanical Society in America, which is as follows:

Outline.

Specifications of the Topics to be Studied:

Part I. The General Principles of (a) Anatomy and Morphology, (b) Physiology and Ecology.

A. Anatomy and Morphology.

The Seed. Four types (dicotyledon without and with endosperm, a monocotyledon and a gymnosperm); structure and homologous parts. Food supply; experimental determination of its nature and value. Phenomena of germination and growth of the embryo into a seedling (including bursting from the seed, assumption of position and unfolding of parts).

Note: Much may be said in favor of beginning this part of the work by a comparative study of the fruit, rather than the seed. By this means the pupil better understands the nature of the "grain" of corn.

The Shoot. Gross anatomy of a typical shoot; including the relationship of position of leaf, stem (and root), the arrangement of leaves and buds on the stem, and deviations (through light adjustment, etc.), from symmetry. Buds, and the mode of origin of new leaf and stem; winter buds in particular. Specialized and metamorphosed shoots (stems and leaves). General structure and distribution of the leading tissues of shoot; annual growth; shedding of bark and leaves.

The Root. Gross anatomy of a typical root; position and origin of secondary roots; hair-zone, cap and growing-point. Specialized and metamorphosed roots. General structure and distribution of the leading tissues of the root.

The Flower. Structure of a typical flower, especially of ovule and pollen; functions of the parts. Comparative morphological study of four or more different marked types, with the construction of transverse and longitudinal diagrams.

The Fruit. Structure of a typical fruit. Comparative morphological study of four or more marked types with diagrams.

This comparative morphological study of flowers and fruits may advantageously be postponed to the end of II, and then taken up in connection with classification of the Angiosperms.

The Cell. Cytoplasm, nucleus, sap-cavity, wall.

As to the study of the cell, it is by no means to be postponed for consideration by itself after the other topics, as its position in the above outline may seem to imply, but it is to be brought in earlier along with the study of the shoot or root, and continued from topic to topic. Although enough study of the individual cell is to be made to give an idea of its structure (a study which may very advantageously be associated with the physiological topics mentioned first under B), the principal microscopical work should consist in the recognition and study of the distribution of the leading tissues.

B. Physiology and Ecology.

Role of water in the plant; absorption (osmosis), path of transfer, transpiration, turgidity and its mechanical value, plasmolysis.

Photosynthesis; dependence of starch formation upon chlorophyll, light and carbon dioxide; evolution of oxygen, observation of starch grains.

Respiration; need of oxygen in growth, evolution of carbon dioxide.

Digestion; digestion of starch with diastase, and its role in translocation of foods.

Irritability; geotropism, heliortropism and hydrotropism.

Growth; localization in higher plants; amount in elongating stems; relationships to temperature.

Fertilization; Sexual and vegetative reproduction.

Although for convenience of reference, the physiological topics are here grouped together, they should by no means be studied by themselves and apart from anatomy and morphology. On the contrary, they should be taken up along with the study of the structures in which the processes occur, and which they help to explain; thus, photosynthesis should be studied with the leaf, as should also transpiration, while digestion may best come with germination, osmotis absorption with the root, and so on. The student should either try, or at least aid in trying, experiments to demonstrate the fundamental processes indicated above.

Modification (metamorphoses) of parts for special functions.

Dissemination. Cross-pollination.

Light relations of green tissues; leaf mosaics.

Special habitats; Mesophytes, Hydrophytes, Halophytes, Xerophytes; Climbers, Epiphytes, Parasites (and Saprophytes), Insectivora.

The topics in ecology (particularly the first four and in part the fifth), like those in physiology, are to be studied not by themselves, but

along with the structures with which they are most closely associated, as cross-pollination with the flower, dissemination with the seed, etc. The fifth may most advantageously be studied with G. in Part II.

In this connection field-work is of great importance, and, for some topics, indispensable, though much may be done with potted plants in green-houses, photographs, and museum specimens. It is strongly recommended that some systematic field-work be considered as far as it goes with the laboratory work. The temptations to haziness and guessing in ecology must be combated.

PART II. THE NATURAL HISTORY OF THE PLANT GROUPS AND CLASSIFICATION.

A comprehensive summary of the great natural groups of plants, based upon the thorough study of the structure, reproduction, and adaptation to habitat of one or two types from each group, supplemented and extended by more rapid study of other forms in those groups. Where living material is wanting for the later, preserved material and even good pictures may be used, and a standard textbook should be thoroughly read. The general homologies from group to group should be understood, though it is not expected that these will be known in detail.

In general, in this part of the course, it is recommended that much less attention be given to the lower and inconspicuous groups, and progressively more to the higher and conspicuous forms.

Following is a list of recommended types from which, or their equivalents, selection may be made:

A. Algae. Pleurococcus (forming a green incrustation on the bark of trees). Sphaerella (a common plant producing a red color in rocky pools and streams in early spring). Spirogyra (the common green water-silk seen in ponds in spring and fall). Vaucheria, Fucus, Nemalion (or Polysiphonia or Coleochaete).

B. Fungi. Bacteri, Rhizopus or Mucor and Penicillium (the common black and blue moulds of the pantey). Yeast, Puccinia (wheat or oat rust or a powdery mildew, Cedar Apple rust), Corn Smut, Mushroom or Toadstool.

Bacteria and yeast have obvious disadvantages in such a course, but their great economic prominence justifies their introduction.

C. Lichens. Any of the very common kind occurring on tree-trunks, rocks, etc.

D. Bryophytes. In Hepaticae (Liverworts), Radula (or Porella or Marchantia). In Musci, Minium (or Palytrichum) or (Furaria).

E. Pteriodophytes. In Filicineae (ferns), Aspidium or equivalant. including, of course, the prothallus.

In Equisetineae, Equisetum (Horse-tail or scouring rush).

In Locopodineae, Lycopodium, and Selaginella (a common kind is found abundantly along streams in moist woods, or Isotes).

F. Gymnosperms. Pine; cedar (the cedar-apple should be explained).

G. Angiosperms. A monocotyledon and a dicotyledon to be studied with reference to the homologies of their parts with those in the above groups; together with representative plants of the leading subdivisions and principal families of the Angiosperms.

Classification should include a study of the primary subdivisions of the above groups, based on the comparison of the types with other living (preferably) or preserved material. The principal subdivisions of the Angiosperms, grouped on the Engler and Prantl system, should be understood.

The ability to use manuals for the determination of the species of flowering plants is not considered essential in this course, though it is most desirable. It should not be introduced to the exclusion of any part of the course, but should be made voluntary work for those showing a taste for it. It should not be limited to learning names of plants, but should be made a study in the plan of classification as well.

The preparation of an herbarium is not required nor recommended except as voluntary work for those with a taste for collecting. If made, it should not represent so much a simple accumulation of species as some distinct idea of plant associations, or of morphology or of representation of the groups, etc.

In a half-year course such as we have in the high schools of Florida it is not possible to go deeply into the topics, yet this outline sets a standard to which we should attain as nearly as possible.

Observations upon living plants should have a large place in the work done, though the dissection and microscopic study of leading types should not be neglected.

Such textbooks as Bergen's "Elements of Botany" and Andrew's "Practical Course in Botany" are suited to carrying out this outline. Note books, which may be ordinary composition books, should be kept containing accurate drawings and expressive descriptions of plants studied in field and laboratory.

Each pupil should have a hand lens, pair of small scissors, scalpel or pocket knife, two dissecting needles, pipette or medicine dropper, and a pair of forceps.

There should be for the use of the class at least one compound microscope with a supply of glass slips and cover glasses, and a section knife. Unless the teacher has the time and skill to make permanent mounts, a set of prepared

slides on general morphology and anatomy will prove of great value.

Some helpful reference books are "Principles of Botany," by Bergen and Davis; "The Teaching Botanist," by Ganong; "The Teaching of Biology," by Lloyd and Bigelow; "Experiments with Plants," by Ousterhout; "Botanizing," by W. W. Bailey, and "Nature and Development of Plants," by Curtis.

Apparatus may be obtained from either of the following houses: Arthur H. Thomas Co., 1200 Walnut St., Philadelphia, Pa.; Central Scientific Co., Chicago, Ill.

CHEMISTRY.

By Edward R. Flint, Ph.D., M.D.,
Professor of Chemistry,
The University of Florida.

The high school furnishes the education of a large majority of our youths, and this fact should be borne in mind in the choice of a subject to be introduced into the curriculum. What subjects will best fit the high school student for his life work, on the grounds that he will not carry his school education further? In the high school the student does not, and should not specialize towards any vocation, but should lay the foundation, by a broad general education, for whatever line of work he may subsequently follow in life. Certain subjects are fundamentally essential for general education and must be included in a high school course, while others are selected more for their value in mental training. To which of these classes does the subject of Chemistry belong? Is the subject of such importance that a general knowledge of it should be considered as fundamentally essential to a general education?

Chemistry, with physics, deals with the science of matter and its various manifestations and these two sciences, therefore, lie at the basis of all the other natural sciences. Whatever line of activities a person may take up, and even in his or her daily life one has to deal with matter in some form or another. A general knowledge of the subject would therefore seem to be essential for the best development and proper understanding of almost any line of human activity. In every way the knowledge of chemistry touches the home life of every man, woman and child in Florida. One cannot pick up a newspaper today and read it understandingly without some knowledge, at least, of chemistry and physics. I believe then, that the science is of such fundamental importance, that it should be introduced into the high school curriculum, and that it should be considered as necessary in

such a course as, for instance, the study of mathematics or English.

To the smaller number, who continue their education through the college and university, and will there get fuller and more complete courses in the science, the high school course serves as a most valuable introduction, and in my experience, such students get a much better grasp of the subject from the beginning.

In the study of chemistry it is essential, more so perhaps than in any other branch with the exception of physics, that the course be presented in the laboratory, where the student can come in direct contact with matter; otherwise it loses its live interest and becomes of cultural value only. The high school then, offering such a course, must equip itself with suitable apparatus and chemicals. This equipment should be made as complete as the means will allow and a considerable expense is justifiable, but an extensive outlay is not an absolute necessity. Many instructive experiments can be devised with very simple and inexpensive apparatus, and if performed understandingly and with proper explanations, such experiments would be of more value than experiments performed in an elaborately equipped laboratory in a mechanical way.

The lack of means, therefore, should not serve as an obstacle to the introduction of the course. An ingenious science teacher can, with a few dollars, devise a course of great value, although the more equipment that can be supplied the better and an outlay, say, of $500 for an average high school could be made to advantage.

The course should, above all things, not be a mere memory exercise, but should aim to make the student study out simple, practical problems for himself. Every principle and law of the science that is met with in these experiments should be illustrated in some way, the simpler the better, so that the student may learn to regard it as a real thing, of general application, rather than as mere theory. In doing this one should not try to cover too much ground. We are not trying to make chemists of our students in the high school, but to awaken in them a desire for knowledge of the

wonderful world about them and to show them how intimately it is connected with practical life.

To accomplish this end, the time necessary to devote to chemistry should be at least one year of not less than three hours a week, half of which time should be laboratory work, counting two hours of the latter as an equivalent to one of class room. If possible, the chemical course should be preceded by a year of physics, as a knowledge of the physical properties of matter, is of great benefit, if not essential, to the further study of its chemical properties. For this reason the course should not be introduced earlier than the eleventh and preferably not before the twelfth grade.

As an example of how a student's interest may be enlisted in the subject with very inexpensive and simple apparatus, I would give him a tumblerful of dilute sulphuric acid, explain briefly its nature, as an acid and what it was composed of. Into this I would have him put some small iron nails or tacks and watch the change that takes place. I would have him examine the gas that is given off by noting the color or odor and what happened to it when brought in contact with a flame. When the action in the tumbler had stopped, I would have him pour off the clear green solution obtained into another glass and set it aside in a warm place. In a few days he will note the formation of beautiful green crystals.

This simple experiment never fails to awaken interest and furnishes material for illustrating many important chemical changes and the principles that underlie them. With the aid of a few test tubes, an alcohol lamp and a few very inexpensive chemicals a great many interesting experiments on material at hand, can readily be devised. For instance, I would show how limestone rock is decomposed by muriatic acid, with the liberation of carbon dioxide gas, how all organic matter as sugar, wood, starch and meat will char on heating, how quicklime slakes with water, how to dissolve a suspected piece of phosphate rock and test it for phosphoric acid, and many others which could be readily devised with but very slight expense, each one being carefully explained

and leading the student further and further into the principles of the science.

In connection with this experimental work, some of the excellent elementary chemistries now published should be used as a textbook, but this should be regarded as supplementary only to the laboratory work and the explanations of the teacher. Among the many such books, adapted to a high school course, the following may be mentioned as examples although the list of suitable books is not by any means complete:

Descriptive Chemistry, by L. C. Newell, published by D. C. Heath & Co. Part II of this book is experiments to accompany the text.

Experimental Chemistry, by the same author and publisher.

Elementary Modern Chemistry, by Ostwald and Morse, published by Ginn & Co.

Elementary Study of Chemistry, by McPherson and Henderson, with the accompanying book on Exercises in Chemistry, published by Ginn & Co.

Introduction to General Chemistry, by Stoddard, published by the Macmillan Co.

First Principles of Chemistry, by Brownlee and others, with an accompanying book on Laboratory Experiments, published by Allyn & Bacon.

The Teaching of Chemistry and Physics in Secondary Schools, by Smith & Hall, Longmans.

If possible, from $25 to $50 should be expended for larger books on the subject, for reference.

In regard to the actual cost of equipment, the following may serve as an example of a moderate expenditure for a class of ten, sufficient to perform most of the experiments as given in the above mentioned laboratory exercise books: apparatus for each student, about $6.00, general apparatus for the class about $30.00 and chemicals about $10.00, making a total cost of about $100. As a rule chemicals should be bought in pound lots, as smaller quantities cost approximately more.

There are many firms dealing in chemicals, apparatus and laboratory supplies, from whom catalogues and price lists can be obtained. Among such firms may be mentioned:

Eimer & Amend, 205 Third Ave., New York.
A. H. Thomas, 12th & Walnut Sts., Philadelphia, Pa.
E. H. Sargent, 145 Lake St., Chicago, Ill.
C. H. Stoelting & Co., 45 West Randolph St., Chicago, Ill.
Woldenberg & Scharr, 1025 So. State St., Chicago, Ill.

Any further suggestions or advice will gladly be given by the Chemical Department of the University of Florida.

COMMERCIAL WORK.

Today there is a great demand for educated business men. Competition is so great and business insight and skill so much needed that the high school, which is to be the school for the average business man and woman of the future more than it has been in the past, must provide specific instruction in commercial education. The business world is demanding, and rightly so, that the public high schools give the boys and girls some practical business training. Many of our best high schools have already obeyed this demand and are now offering courses in bookkeeping, stenography, typewriting, commercial arithmetic, commercial geography, commercial English and commercial law, and other practical commercial studies. Those schools that have provided for such work find that many pupils remain in the high school one, two and even three or four years longer than they would have if these subjects had not been provided. This of itself is sufficient to justify the introduction of a commercial course wherever it is at all possible.

The public high school that offers commercial courses not only induces many boys and girls to remain in school longer, but it has other advantages: (1) It fits a boy or girl for something; to fill some place in the business world and to make an honest, respectable living when school days are over. It is a sad condition when the boy or girl leaves high school and often the college and does not know how to do anything. The world must then take them and have them begin at the beginning of their life-work. (2) It offers at least from two to four years' study in the commercial branches instead of from four to six months. (3) It provides extended and thorough courses in English, mathematics, history and science along with the commercial work, thus assuring a good education. (4) It is a free school and at the very doors of the pupils, thereby enabling the boy or girl to learn about their future occupation while at home. (5) It fits the course to

the special business and conditions in the local community in which most of the pupils will live and work.

The full commercial course in the high school wherever it is at all possible, should include a full course in English—the whole four-year course—a year or two in history, at least two years in mathematics—algebra and geometry—and one or two years in science. The strictly commercial studies will embrace commercial arithmetic, penmanship, bookkeeping, stenography, typewriting, commercial law, and civil government. With such a course as this pupils will find that, if they decide to go to college after they have finished high school, they are as well trained and prepared for the work as those who have taken one of the other courses, either classical, scientific or general. This course is made just as liberal and broadening as any other course if it is in the hands of a good teacher. For those who are not going to college, such a course will fit them to go directly into the business world.

As far as it is possible the great stress should not be laid on the strictly commercial subjects until during the eleventh and twelfth grades. By that time pupils will be old enough and sufficiently well trained to grasp the meaning and application of the business course. By this arrangement, it will be possible to keep the pupils in the high school for a longer time, for they will know that in the upper grades the practical training is to be had if they will get ready for it. But since this plan may not appeal to the pupil and his parent, the work may be rather evenly distributed thru the grades about as follows: First year, commercial arithmetic, spelling and penmanship. Second year, bookkeeping and commercial geography. Third year, stenography, typewriting and bookkeeping. Fourth year, stenography and typewriting, civil government, commercial law and business ethics.

Those schools that find that they cannot hold their students thru four years of high school work, but could hold them for two or three years, should provide a two- or three-years' course that would cover the practical business subjects and English. A few schools in Florida are today pro-

viding a strictly business course of two years' length, for those pupils who cannot spend in school more than two years beyond the eighth grade. This plan is most certainly better than the turning of the pupils away from the public school and forcing them to go into business, if places can be secured, without any preparation for it or else forcing them to seek business training at poor so-called commercial schools and colleges. Those schools that have these two-year, strictly commercial courses find that all of the pupils who finish this course find at once good positions open to them.

DOMESTIC ECONOMICS.

By Agnes Ellen Harris, B.S.,
Director of the Department of Home Economics,
Florida State College for Women.

Outline Course for First and Second Year Home Economics to be Given in High Schools.

Home Economics, as suggested in this course, consists of two divisions: Domestic Science, which deals with food, and Domestic Art, which deals with clothing.

Domestic Science.

Aims: 1. To give girls ideals they may work toward in home making, and have them realize home making is a profession for which they must be scientifically prepared.

2. To familiarize girls with the practical processes carried on in the home, and to give them a knowledge of the scientific principles underlying these processes.

3. To emphasize the importance of cleanliness in every part of the home, and give methods by which this cleanliness may be attained.

4. To inspire interest in house work and to encourage girls to take an active part in it.

5. To emphasize the importance and dignity of doing all the work of the home well.

6. To familiarize girls with the composition of food stuffs, and the proper combinations of foods.

Foods and Food Preparation.

Two double periods per week.....1 credit.

Definition of Foods and Cooking.

Effect of heat upon foods; effect of heat upon proteids, fats, carbohydrates, alone and in combination. Leavening agents.

1. MILK.

a. Source. b. Composition. c. Food value. d. Care in the home. e. Pasteurization. f. Preparation for infant feeding. g. State laws governing sale of milk.

2. MILK PRODUCTS.

(1.) Butter. a. Source. b. Bacterial action. c. Butter substitutes.

(2.) Cheese. (Cheese should come under butter and correspond with it.) a. Method of production. b. Rennet. c. Composition. d. Food value. e. Effect of high temperature. f. Method of Cookery. g. Digestibility. h. Recent experiments by U. S. Department of Agriculture on digestibility of cheese.

3. MEAT.

a. Structure of muscles (microscopical work). b. Composition. c. Food value. d. Digestibility. e. Place in the diet. f. Effect of heat. g. Methods of cookery.

4. FISH AND FOWLS.

a. Variety. b. Composition. c. Nutritive value. d. Digestibility. Application and effect of heat. Baking, boiling.

5. GELATIN.

a. Source. b. Composition. c. Properties. d. Food value. e. Use in diet. Preparation of simple and easily digested desserts.

6. EGGS.

a. Digestion of raw and cooked eggs. Laboratory experiment. b. Composition. c. Nutritive value. d. Thickening capacity of eggs. Custards, meringues. e. Leavening. Sponge cake. f. Use in diet as meat substitutes. g. Comparison with meat as to cost, ease of preparation, and digestion. Omelets, poached eggs, etc.

7. STARCH: POTATOES AND CEREALS.

a. Structure of starch grains. b. Effect of heat on starch. c. Physical change. Microscopic work. d. Chemical change. Iodin test. e. Thickening properties. f. Application (1) in cooking cereals. Use of Fireless Cooker. (2) Making corn starch puddings.

8. Vegetables: Root Vegetables, Leaf Vegetables.

a. Composition. b. Nutritive value. c. Practical application in cooking vegetables in season, with regard to economy and digestibility.

9. Batters and Doughs.

a. Definition. b. Study of material used. (1) Flour: variety, manufacture. (2) Leavening: action of acids on carbonates, practical application in making baking powders. Effect of moisture.

Practical application in making one of each type of quick breads: e. g., muffins, griddle cakes, waffles, biscuits, plain cakes.

10. Fruits.

Uses as food. Composition, and place in diet. Canning fruit. Cooking dried fruit. Baking apples and bananas.

References.

Conn, H. W. Bacteria Yeasts and Molds in the Home.
Lincoln and Barrows. Home Science Cook Book.
Hutchinson. Food and Dietetics.
Library of Home Economics.
U. S. Department of Agriculture. Farmers' Bulletins.

Note. All Domestic Science publications can be procured from Whitcomb and Barrows, Huntingdon Chambers, Boston, Mass.

Suggestions to Teachers.

1. Make out a course of study based on the preceding course but adapted to the school in which you are teaching.

2. Unless the course presented is logically planned and well developed, results will be unsatisfactory.

3. Consider the following points in making out courses:

(a) The location of the school, whether in small town or city.

(b) The environment of the student, whether or not the student will have immediate need and practical opportunity for practical cooking in her home.

(c) The season in which foods are cheapest; e. g., egg lessons should be given the time of year in which eggs are cheapest.

4. Correlate work in Domestic Science with other branches; e. g., arithmetic, geography, history, physics, chemistry, physiology.
5. Require carefully kept note books.
6. Use Government Bulletins on Foods.

Second Year.

Two double periods per week_____ ___1 credit.

1. Canning and Preserving Foods.
   a. Canning fruits and vegetables.
      (a) Bacterial structure, reproduction, food conditions.
      (b) Practical application in the use of the home canner.
      (c) Comparison of cost and quality of fruits and vegetables canned in laboratory, with canned fruits and vegetables bought on the market.
   b. Preservation of fruits in sugar.
      (a) Effect of preserving on structure, composition and flavor.
      (b) Practical application in making jellies and jams. Pectin tests, use of thermometer.
   c. Making preserves, marmalade, and crystallized fruits of oranges, grapefruits and kumquats.
2. Yeast Breads.
   a. Yeast.
      (a) Structure: microscopical examination.
      (b) Reproduction, conditions favoring, practical application in making bread, rolls, and buns.
3. Adulterations of Foods.
   a. Experiments in detecting adulterants.
   b. Study of state pure food laws.
4. Table Service.
   a. Planning, cooking, and serving breakfast, dinner and supper.
   b. Computing cost of meal and marketing for it.
5. Cost of Foods.
   a. Study of market price and conditions.

b. Study of price of foods compared, and comparison of composition of foods.

6. Family Dietary.

a. Study of composition of foods, methods of selecting foods in various conditions of life.

7. The Care of Children.

a. The baby.
   (a) Review work on milk.
   (b) Baby foods, composition and food value.
b. Child of school age; lunch baskets.
c. Adult. Food requirements according to occupation and income.

8. Home Nursing and Emergencies.

a. Cooking for invalids; making bed; poulticing; care of burns; poisoning; fainting; drowning, etc.

References.

Farmer, Fannie Merritt. Food and Cookery for the Sick and Convalescent.
Farmer, Fannie Merritt. Boston Cooking School Cook Book.
Gibbs, Winifred. Proper Feeding of the Family.
Holt, L. Emmett, M.D. Care and Feeding of Children.
Hunt, Caroline L. The Daily Meals of School Children.
U. S. Bureau of Education Bulletin.
Chapin, Henry Dwight, M.D. Theory and Practice of Infant Feeding.
Richards, Ellen H. The Cost of Living.

Equipment.

A good course in Domestic Science may be given by a versatile instructor, with a modest equipment. Every school is advised to put in as good an equipment as possible, but it is better to put in a modest equipment and begin Domestic Science work, than to delay introducing the work into the schools. In some schools very good work is being done with equipment not costing more than $100. The average equipment for High School work in the South varies from $300 to $500.

Room: The Domestic Science Laboratory should be a well ventilated, well lighted room, with gas and water con-

nections, if located in a town where gas is obtainable. A room 24x17 is large enough for a class of from twelve to sixteen students to work in. A store room 13x14 gives ample storage space for supplies, and a dining-room 13x16 is sufficiently large to serve from six to eight guests.

Sinks: There should be one or more sinks. The heighth from floor should be made to suit students, and material white and durable. Drain boards of sinks should be of wood.

Stoves: The Laboratory should include one stove, in which the fuel most universally used in the locality is burned.

Gas is the most convenient fuel for a Laboratory.

Satisfactory work is done with gasoline and kerosene stoves.

Equipment for 12 Students.

Total cost $125.
Stove, wood or coal (6 holes).
Tables. 4 kitchen tables for work, three girls at a table.
Tables. 1 oblong table for supplies.
1 cupboard for holding supplies.
1 cupboard for holding utensils.
1 doz. screw top or glass top jars, 1-pt. for provisions.
1 doz. screw top or glass top jars, 1-qt. for provisions.
1 metal can for flour.
1 metal can for sugar.
2 large buckets for water.
2 wash basins.

Group I. One dozen of each of the following—

Mixing bowls (1 qt.), small bread boards, small rolling pins, Dover egg beaters, 6-in. frying pans, kitchen knife and fork, asbestos mats, ½ pt. tin measuring cups, wood mixing spoons, small bread pans, spatula, table spoons, teaspoons, vegetable knives.

Group II. One-half dozen of each of the following—

Biscuit cutters, small round pans, 1-pt. coffee pots, 8-qt. dish pans, 8-qt. rinsing pans, small wooden back scrubbing brush, medium strainer, 1-pt. tin pot, 1-qt. double boilers.

Group III. One-fourth dozen of each of the following—

3-qt. bowls, wooden chopping bowls, chopping knives, muffin pans (tin), nutmeg graters, 3-qt. enameled pitchers.

Group IV. One of each of the following—

2-qt. double boilers, griddle cake turner, lemon squeezer, bread

knife, can opener, pair scissors, coffee mill, 2 coffee pots, cork screw, flour sifter, frying kettle, ice cream freezer, quart and pint measuring cups, large tea kettle.

Note. Almost every article in this equipment can be bought at the local stores. If not in stock they can be ordered from a large Jacksonville hardware store, or from King Hardware, Atlanta, Ga.

Equipment for 12 to 20 Students.

Total cost $300.

This equipment will differ from the $125 in tables, sinks, and stoves, but the small utensils are about the same.

If located in a town where gas is used have two gas ovens, and one stove for wood and coal.

The tables are more satisfactory built in the town by a local carpenter, if a good carpenter is available. Diagrams for desks of various kinds can be procured by writing to the Director of Home Economics Department, Florida State College for Women, Tallahassee, Fla.

There are on the market Domestic Science desks, made by E. H. Sheldon, 312-326 No. May St., Chicago, Ill. The prices vary from $15 to $30 for double desks.

Reference.

Kinne, H., Equipment for Teaching of Domestic Science, Whitcomb and Barrows, Huntingdon Chambers, Boston, Mass.

Itemized Equipment for High School Class of 12 Students.

Individual Equipment.

1½ doz. measuring cups at 30c	$ .45
2 doz. custard cups at 60c	1.20
1 doz. granite utensil pans at 60c	.60
3 doz. pie pans (3 sizes) at 30c	.90
1 doz. Dover egg-beaters at 60c	.60
1 doz. daisy egg-beaters at 60c	.60
2 doz. small mixing bowls at 60c	1.20
1 doz. small plates at 60c	.60
1 doz. thick cups and saucers at 60c	.60
1 doz. double boilers with cover at 30c each	3.60
1 doz. small sauce pans at 60c	.60

1 doz. small broiling pans at 60c	$ .60
1 doz. steel kitchen knives at 50c	.50
1 doz. steel kitchen forks at 50c	.50
1 doz. small wooden mixing spoons at 60c	.60
1 doz. salt shakers at 60c	.60
1 doz. spatulas at 10c each	1.20
2 doz. kitchen tablespoons at 75c	.75
1 doz. teaspoons at 60c	.60
1 doz. plated forks	1.20
1 doz. plated spoons	1.20
1 doz. plated knives	1.20
1 doz. heavy woven sieves	.60
1 doz. small strainers	.60
1 doz. paring knives at 10c each	1.20
1 doz. 8-quart dish pans at 30c each	3.60
1 doz. bread boards at 25c each	3.00
1 doz. rolling pins at 10c each	1.20
1 doz. vegetable brushes	.30
1 doz. loaf bread pans 5c each	.60
Total	$21.00

General Equipment.

6 glass fruit jars (1 qt.)	$ .25
6 apple corers at 5c	.30
6 nutmeg graters at 5c	.30
6 muffin pans at 10c	.60
6 biscuit cutters at 5c	.30
6 soap dishes at 10c	.60
6 graters at 5c	.30
6 teapots at 25c	1.50
6 coffee pots at 25c	1.50
6 asbestos mats at 2½c	.15
6 baking dishes at 10c	.60
6 small butter jars at 10c	.60
4 2-quart pitchers at 10c	.40
4 large mixing spoons at 5c	.20
3 lemon squeezers at 10c	.30
2 japanned trays at 10c	.20
2 pair scissors at 75c	1.50
2 deep fat fryers at 30c	.60
2 doz. dessert molds at 5c each	1.20
2 wire cooling mats at 10c	.20
2 large tea kettles at 25c	.50
2 1-quart pitchers at 10c	.20
1 pair scales	2.50
1 spice box	.25

1 chopper	$ .10
1 wooden chopping bowl	.25
1 pair butter molds	.25
1 can opener	.10
1 cork screw	.05
1 waffle iron	1.50
1 roasting pan	.10
1 soap stone griddle	1.50
1 bread knife	.25
1 large flour sieve	.15
2 small funnels	.05
1 2-quart ice cream freezer	2.50
1 pudding mould	.25
1 sugar bin	.40
1 flour bin	.75
1 box labels	.05
1 bread box	.75
Total	$24.05

FOR SERVING LESSONS.

Table cloth	$ 1.25
½ doz. napkins	.50
½ doz. small cereal bowls	.30
½ doz. thin cups and saucers	.30
½ doz. dinner plates	.30
½ doz. soup plates	.30
½ doz. bread and butter plates	.30
½ doz. finger bowls	.30
½ doz. thin tumblers	.30
1 bread plate	.10
2 covered vegetable dishes	.40
2 open vegetable dishes	.20
2 meat platters (2 sizes)	.20
1 large tea pot	.25
1 large coffee pot	.25
1 cream pitcher	.10
1 sugar bowl	.10
1 glass fruit dish	.10
3 salt and pepper holders	.30
1 vase or bowl for flowers	.10
100 paper napkins	.10
Total	$ 6.05

FOR CLEANING.

1 blacking brush for stove	.10
1 broom	.30

Dust pan with long handle	$ .15
½ doz. cheese cloth dusters	.30
5 yards linen for dish cloths at 25c	1.25
18 yards toweling at 10c	1.80
	$ 3.90

Two 4-hole kitchen stoves.
Six kitchen tables with shelf 3½x2½.
Zinc or oilcloth to cover tables.
Supply table.
Teacher's desk.
One dozen stools or chairs.
Supply cupboard or two large safes.
Two large water buckets.
One or two sinks.
Roll of brown wrapping paper.
One roll of paper towels for hands.

TOTAL COST OF EQUIPMENT.

For individual equipment	$21.00
For general equipment	24.05
For equipment for serving meals	6.05
For cleaning	3.90
Total	$55.00

The stoves, kitchen tables, stools, chairs, buckets, sinks, wrapping paper, paper towels for hands, may be bought at the town and prices vary.

This equipment could be installed for $125, but it is advised to have more money in the beginning if possible.

Domestic Art.

Work in Domestic Art may be added to the curriculum in all of the grades, and if necessary may be carried on by the grade teacher. The versatile, energetic teacher has no trouble in gaining sufficient interest from parents and students to have them furnish necessary materials, and to find time to begin this training in the elementary grades.

The following points should be considered in adapting a course of study to the individual school.

1. The child (age and psychological nature).
2. The locality, and environment.
3. The aim of the school.

4. The relation the Domestic Art work may have to the general course.

5. The cost of the work.

6. The relation to home, school and social needs.

The following is a two-years' course of study which may be adapted to individual schools.

First Year.

Two periods per week.....1 credit.

Plain Sewing and Simple Millinery.

a. The various stitches and their special uses. These may be first made on practice pieces, and applied, as soon as learned, in making household articles;

e. g. Holders, caps and aprons.
Needle books.
Sewing bags.
Christmas gifts.

b. Mending and darning. Articles may be brought from home and mended as soon as necessary stitches have been learned.

c. The use and care of the sewing machine. For economy of time, and durability of work, the machine should be used.

d. The use of bought patterns and cutting out. Problems: Cut out simple under garments.

e. The nature and special uses of cotton, linen and woolen goods. The purchase of materials, including study of prices, width, and quality.

f. Application of hand and machine sewing in making a suit of underwear, and plain waist cut by a bought pattern.

g. Millinery. A study of materials for hats, appropriate millinery, purchase and cost of materials, renovating materials, color harmony, line in relation to faces, making bows and trimming simple hats.

Second Year.

Two periods per week.....1 credit.

a. Drafting pattern for plain skirt and waist, cutting and fitting plain shirtwaist dress from drafted pattern.

b. Sketching of dress, relation of line and space in decoration or trimming to suit human form.

c. Making a simple shirtwaist and dress, waist, skirt and simple lingerie gown.

d. Care of machine. Studying the mechanism of machines.

e. Textile study. Sources of materials, properties and manufacture, design and workmanship, tests for adulterations of cloth.

f. Millinery. Computation of cost in relation to other apparel.

PROBLEMS—

1. Frame making, wire and buckram.
2. Fall or winter hat.
3. Lingerie hat.

g. The suitability of apparel in relation to income. Computing cost of all articles and garments made, keeping account of expenses for clothing.

The following are allied subjects:

1. Art, history, mathematics.
2. Physics, physiology.
3. Commercial geography.

Economy and good taste in dressing are emphasized throughout course.

Hand sewing and machine sewing are equally used.

Every exercise should illustrate a principle or process, and all work should be well planned, and logically presented.

Equipment. The equipment for teaching Domestic Art varies in price according to number of students, and content of course.

Scissors, thimble, emery, tape measure, and needles should be furnished by students, kept in a neat box.

Cutting tables and machines are necessary for good work in the high school. One cutting table for every ten students, and one machine for every five students.

One fitting stand.

Two ironing boards with irons.

Lockers for storing materials, finished articles and workboxes.

ENGLISH.

No subject in the elementary or high school is more important than that of English. When we consider that by means of it all of our thoughts, emotions and volitions may be made known to the world and those of the world may be revealed to us, we are convinced, without argument, that no part of any school work should receive more direct attention and stress than the study of the mother tongue. It is our constant companion in society or out of it, and its characteristics, as revealed to ourselves and the world, are an index to the lives of those who use it. Nothing that the individual possesses can show more quickly and more directly his social level and education than his knowledge of his mother tongue and his use of it. The world today measures each individual by his power to express properly his ideas through his mother tongue and by his appreciation of its best literature. This is true in every walk of like. No matter what life we enter whether it be in business, in science, in politics or in society, the young man or woman who is to succeed must possess a good working knowledge of his or her mother tongue. Not only is this true, but the very best of all knowledge and the very richest of all experiences people have had have been recorded in permanent form in books. Here those who are acquainted with the English language may gather the most inspiring ideas and feelings that the race has ever had and thereby contribute to their own lives richness and fulness that nothing else can give.

So the purpose of studying English in the school is broad and deep. It must not be superficial and bookish, but it must aim to be improving and life-giving as its final results. The Committee of Ten says that "The main direct objects of the teaching of English in schools seem to be two: (1) to enable the pupil to understand the expressed thoughts of others and to give expression to thoughts of his own; and (2) to cultivate a taste for reading, to give the pupil some acquaintance with good literature and to furnish him with

the means of extending that acquaintance." This aim is good, but it does not seem to stress, as it should, the large human element that most of the English study in the high school should give. During the four high school years those elements of the English work that count most for life and character must receive the major part of the time and effort. "As a rule these four years of the high school life are to count for more in determining the set of the character than any other four years of life." Before this time the mechanical forms of the language should have been learned and fixed, and now the new budding life of the youth and maid must have those things that will uplift, inspire and properly direct the emotional and rational nature that is for the first time arising. No subject in the high school course can do this so well as English.

LITERATURE.

Believing that English in the high school should have as its chief aim the humanizing of the pupils at this most sensitive and impulsive age, literature should be given the leading part in all the work. The Committee of Ten recommends that at least three periods per week for four years should be given to it. The schools of Florida may find this too much time to devote to it, since so many of the pupils who enter the high schools are not as thoroughly acquainted with and habituated in the use of the ordinary mechanics of the language as they should be. Notwithstanding this deficiency (which must be corrected and righted in the composition and grammar classes) literature must receive a good share of the time in all the high school years.

Chubb says that "In prescribing the literature that is to be read during the high school period, we must allow several factors to count. These may be ranged under two main divisions: first, the characteristics, the needs, and the interests of the adolescent period; and secondly, the vocational demands made upon high school education." (For a good discussion of the kinds of literature to be used in the different grades and how to present each, see "The Teaching of English" by Chubb, chapters 13-16.) The child's best in-

terests are to dominate this selection. Literature is for appreciation and not for knowledge. Only that literature that can be appreciated by the pupils should be given. The adolescent does not want adult or child literature but that which is especially suited to his own developing age. It should cover all of the common forms of poetry and prose and should not use one or two types to the exclusion of other types just as important. Pupils should be required to read much literature outside of that required for class-room work. Here is the place to make good broad readers out of your pupils. The library should be used freely.

No literature lesson should be a lesson in grammatical or word analysis. Nothing will kill the spirit that should run through all the work in literature quicker than the introduction of too much dry, formal, technical grammar and word-study in connection with the class in literature. Pupils should read to enjoy literature and not read to analyze and parse it. The introduction of grammatical and word analysis have no purpose other than to give greater joy and appreciation and understanding of the parts read. They are of secondary importance and should be so considered.

Oral reading before the class on the part of the teacher and by the pupils is without doubt the best single method in properly presenting a piece of literature. "The basis of all literary training is oral," says Chubb. Encourage the pupils to read aloud while they study their literature at home and devote much of the recitation period to oral reading. (For aid in oral work, see "The Aims of Literary Study" and "The Voice and Spiritual Education" both by Corson, Macmillan.) In this oral reading, elocution is not included —far from it—, but proper pronunciation and enunciation of the words and natural expression of the feelings and ideas contained in the piece, are included.

It is urged that all literature classes be required to memorize and recite a limited number of the most interesting (to the pupil) parts of many selections studied. Too much should not be attempted here, but enough should be given to enable the pupil to appreciate a proper oral rendering of some of the choicest pieces of literature.

Literature in the high school means literature, and not books about literature. The history of the literature studied and the lives of the people who wrote it, should be gotten for the most part after the selections have been studied, and it should not be made the backbone of a so-called course in literature. The history of literature, strictly speaking, should not be used, except in the third and fourth years, in any way save as a reference book. During the last two years of the high school, to give a connected and chronological account of the different periods of literature that has been studied, it is recommended that a small primer of the history of literature be studied. Small books similar to the following are recommended: "A Primer of English Literature" and "A Primer of American Literature" by Howes, Heath. If larger books are used as texts, all of the insignificant details should be omitted.

Composition and Rhetoric.

Composition is another subject that should receive specific attention every week during the whole high school course, and should receive incidental but helpful attention every day during the four years. Rhetoric is of value "as it is related to the study of literature and composition," and a knowledge of it should be developed gradually from the material found in literature and there put into practice in the work in composition. A formal text-book in rhetoric should not be slavishly followed. The pedagogical law; that the instruments of knowledge should not be given until the pupil has a need for them, holds true in the teaching of rhetoric. So teachers should give the elements and terminology of rhetoric where they are needed in connection with the composition and literature work.

In teaching composition free expression is the first and main thing to be secured. Pupils must be encouraged to talk and write freely in each and all of their high school subjects. Freedom and ease are the first essentials in good expression. Correct expression, good style and the rhetorical niceties will come later. The high school must first of all aim for composition and later for correct composition. To get this those sub-

jects that are of interest to the individual pupil and that he delights to tell about should be chosen for composition work. This with few rules and restrictions of the mechanics of the language imposed during the writing will make the whole work of composition writing life-like and worth while to the pupil. Originality will show itself here if it is in the pupil. And this self-expression is what the high school composition must work for.

"In the criticism and correction of the composition and other exercises, incomparably the most important thing is to teach each pupil to criticise his own work and correct his own errors." Compositions should not ordinarily be read and corrected by the teacher until the pupil has had opportunity to make his own corrections as sober second thought has directed. This plan will lift a great burden off the shoulders of over-worked English teachers, and at the same time it will give to the pupil that critical eye and judgment for what is good or bad in his own writing. In making corrections only a few of the grave errors should receive the first efforts. Pupils should be directed to find and correct in their own compositions certain definite mistakes and should not be given the general command, "Correct the composition." By such a plan it will be found that every pupil will be able to find and correct nine-tenths of his own mistakes. With these more common and graver mistakes removed, the less obvious ones are taken up. When a correction is suggested by the teacher, he must see that the pupil knows and applies it before the point in question is dismissed. All well-done work should receive recognition by the teacher and should be read, if possible, before the class. Compositions should be kept in permanent form by writing them in note-books. The best plan is to have the original composition written on the odd pages of the note-book and the final corrected draft placed on the opposite or even pages. This permanent note-book will, from year to year, prove of great value in showing the pupil's progress, and will also aid the pupil if he should enter college.

That the pupils may not be required to write too many compositions to the neglect of other valuable work, it is rec-

ommended that all compositions written by the pupils, whether for the English classes or some other classes, be turned over to the English class for criticism. It is also recommended that every teacher require good English on the part of the pupils in all school work. This is the only way to make pupils realize that correct English is for every-day use and not merely for special occasions and classes.

Composition in the form of debates in literary societies and in the form of essays and reports for the high school paper (and this should be encouraged by all high schools that are able to undertake the publication of a school paper) should receive attention by all the classes in English. This kind of work will vitalize the whole course in English.

Every high school in Florida should have a literary and debating society in connection with the English work. This should meet at least twice per month, and oftener if possible.

Too much stress can not be laid on letter writing as part of the composition work. This is one form of English composition that all pupils will need, and it should receive special attention during each year of the high school. The pupil, who can not write a properly formed and correctly executed friendly and business letter, should not be allowed to graduate from a high school in Florida. It is urged that teachers of English see that pupils are proficient in this work.

Punctuation and Spelling.

It is not necessary to argue the importance of the knowledge of punctuation, for all realize its value. The only way to acquire it is in the composition work. To memorize the rules for it in a manual of punctuation will not insure its proper use. Practice in its proper use in all written work is the only means that will make it a permanent part of the pupil's knowledge. "During the earlier part of the course only a few of the more important principles of punctuation should be reviewed; but before the close of the fourth year, every student should have received such instruction as will enable him to punctuate fully and correctly."

Spelling should be taught as the need arises. Like

punctuation it is best learned by practice in composition and letter writing. Stress should be laid upon spelling the common every-day words. Here and not in the spelling of the uncommon and technical words is where poor spelling counts most against us. If a spelling book is to be used, something like either of the following books is recommended: Sandwick & Bacon.—High School Word Book (Heath); Payne's Common Words Commonly Misspelled.—(B. F. Johnson).

Grammar.

In the high school that has been preceded by an eight-year elementary school, as in Florida, the study of grammar should be subordinate to the study of literature and composition. But since it is somewhat abstract it should receive attention throughout the four years of the high school. During the first year it should be given special attention, while during each of the remaining years its study should be incidental but certain and in connection with the composition and literature work. If the elementary school has done for the pupils what it should have done, the high schools will not need to give more than two periods per week to the study of grammar during the first year. This is sufficient and no more time should be given to it save as mentioned above. "It should not be pursued as a separate study longer than is necessary to familiarize the pupil with the main principles." Grammatical analysis should accompany the reading of literature and the study of composition in so far as it aids in their interpretation and appreciation, but no further. Its whole purpose should be to enable the pupil to understand the common grammatical relations of the sentence in the prose and poetry read. Unusual idioms and grammatical puzzles have no place in high school work. Long drills on formal grammar, as a few schools still practice, are worse than wasted and should never be allowed.

First Year.

Grammar (2 periods first term, 1 period second term). It should include a thorough review of a good standard gram-

mar with its application to the composition and literature work.

Composition (1 period first term, 2 periods second term). Special attention should be given to the narrative form of composition, oral and written; to punctuation and spelling; and to letter-writing.

Literature (2 periods). Reading of classics. (See below for names of classics).

Second Year.

Grammar (in connection with Composition and literature classes). During this year attention should be given to the analysis of sentences; to the review of those grammatical constructions that constantly occur in the composition and literature work. Those that most often cause errors should be stressed until they are thoroughly understood and made habitual in their use.

Composition (3 periods).—Description should receive the greatest efforts of any of the forms of composition during this year. However, all the forms should be studied and practiced. Letter-writing must be continued. Punctuation and spelling.

Literature (2 periods).—Reading of Classics. (For classics see below.)

Third Year.

Grammar.—The same as for the second year. The textbooks in grammar should be kept at hand and should be referred to constantly.

Composition and Rhetoric.—(2 periods). That form of composition called exposition should receive special attention, but the other forms must not be neglected. The study of punctuation and spelling and the practice in letter-writing must be continued.

Literature (3 periods).—English literature should receive special attention this year. This will go well with the study of English history. That part of the history of the literature (English) that will give a back ground for understanding the classics read during this and previous years should be given.

The major part of the time, however, should go to the literature itself. (For classics see below).

Fourth Year.

Grammar.—As described for the second and third years. If the pupils are to take the teachers' examinations, then a special time, say two periods per week, should be given to it.

Composition and Rhetoric (1 period).—The argument should receive stress this year. A thorough review of all forms of compositions should be made. Practice in letter-writing, spelling and punctuation continued.

Literature (4 periods).—Much reading should be done this year. Stress should be placed upon American literature. The history of the literature (American) the same as described above for third year. (For classics see below.)

Books for Teachers, Pupils and Libraries.

Grammars.

Baskervill and Sewell—English Grammar (American Book Co.).
Smith—Our Language, Grammar (B. F. Johnson).
Gowdy—English Grammar (Allyn and Bacon).
Carpenter—English Grammar (Macmillan).
Whitney—Essentials of English Grammar (Ginn).
Webster—The Elements of English Grammar (Houghton).

Composition and Rhetorics.

Brooks—English Composition, Books I and II (American Book Co.).
Keeler and Adams—High School English (Allyn & Bacon).
Sykes—Elementary English Composition (Scribners).
Huntington—Elements of English Composition (Macmillan).
Thomas—Study of the Paragraph (American Book Co.).
Carpenter—Rhetoric and English Composition (Macmillan).
Gardiner, Kittredge and Arnold—Manual of Composition and Rhetoric (Ginn).
Scott and Denny—Composition and Rhetoric.
Composition and Literature (Allyn & Bacon).
Baker and Huntington—Principals of Argumentation (Ginn).
Thomas—Manual of Debate (American Book Co.).

Literature (History)

Howes—A Primer of English Literature.
A Primer of American Literature (Heath).
Halleck—History of English Literature.
History of American Literature (American Book Co.).

Long—English Literature (Ginn).
Trent—History of American Literature (Appleton).
Noble—Studies in American Literature (Macmillan).
Tappan—A Short History of English and American Literature (Houghton).

Books for Teachers and Libraries.

Chubb—The Teaching of English (Macmillan).
Carpenter, Baker and Scott—The Teaching of English (Longmans).
McMurry—Special Method in the Reading of English Classics (Macmillan).
Thomas—How to Teach English Classics (Houghton).
Bates—Talks on the Study of Literature.
Talks on Teaching Literature.
Talks on Writing English (Houghton).
Blakely—Teachers' Outlines for Studies in English (American Book Co.).
Heydrick—How to Study Literature (Hinds & Noble).
Gayley—The Classic Myths in English Literature and Art (Ginn).

Lists of English books for libraries may be found in A. L. A. Catalogue, mentioned under High School Libraries in this bulletin.

Literature (Classics).—The literature here given is that recommended by the College Entrance Requirements in English. Believing that those classics recommended for 1912 are already known and used by the high schools of Florida, those for 1913-15 only are here given.

Classics.

For Study, 1913-14-15.

Shakespeare's Macbeth; Milton's L'Allegro, Il Penseroso and Comus; Burke's speech on Conciliation with America (or both Washington's Farewell Address and Webster's First Bunker Hill Oration; Macauley's Life of Johnson (or Carlyle's Essay on Burns.)

For Reading, 1913-14-15.

Group I. (Two to be selected.)

(a) The Old Testament, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther; (b) Homer's Odyssey, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVII; (c) Homer's Iliad, with the omission, if desired, of Books VI, XIII, XIV, XV, XVII, XXI; (d) Virgil's Æneid.

Group II. (Two to be selected.)

Shakespeare's Merchant of Venice; Midsummer Night's Dream; As You Like It; Twelfth Night; Henry the Fifth; Julius Cæsar.

Group III. (Two to be selected.)

Defoe's Robinson Crusoe, Part I; Goldsmith's Vicar of Wakefield; Scott's Ivanhoe (or Quentin Durward); Hawthorne's House of the Seven Gables; Dicken's David Copperfield (or Tale of Two Cities); Thackeray's Henry Esmond; Mrs. Gaskell's Cranford; George Elliot's Silas Marner; Stevenson's Treasure Island.

Group IV. (Two to be selected.)

Bunyan's Pilgrim's Progress, Part I; Addison's Sir Roger de Coverley Papers; Franklin's Autobiography; Irving's Sketch Book, Macaulay's Essay on Lord Clive and Essay on Warren Hastings; Thackeray's English Humorists; selections from Lincoln, including at least the two Inaugurals, and Lincoln's speeches in Independence Hall and at Gettysburg, his Last Public Address, Letter to Horace Greeley, with a brief memoir or estimate; Parkman's Oregon Trail; Thoreau's Walden (or Huxley's Autobiography, and selections from Lay Sermons, including the addresses on Improving Natural Knowledge, A Liberal Education, and A Piece of Chalk); Stevenson's Inland Voyage, and Travels with a Donkey.

Group V. (Two to be selected.)

Palgrave's Golden Treasury (First Series), Books II and III, with especial attention to Dryden, Collins, Gray, Cowper, and Burns; Gray's Elegy in a Country Churchyard and Goldsmith's Deserted Village; Coleridge's Rime of the Ancient Mariner and Lowell's Vision of Sir Launfal; Scott's Lady of the Lake; Byron's Childe Harold, Canto IV, and The Prisoner of Chillon; Palgrave's Golden Treasury (First Series), Book IV, with especial attention to Wordsworth, Keats, and Shelley; Poe's Raven, Longfellow's Courtship with Miles Standish, and Whittier's Snowbound; Macaulay's Lays of Ancient Rome and Arnold's Sohrab and Rustum; Tennyson's Gareth and Lynette, Lancelot and Elaine, and the Passing of Arthur; Browning's Selected Poems (Cavalier Tunes, How They Brought the Good News from Ghent to Aix, Home Thoughts from Abroad, Home Thoughts from the Sea, Incident in the French Camp, Herve Riel, Pheidippides, My Lost Duchess, and Up at a Villa—Down in the City).

ETHICS OR MORAL EDUCATION.

In recent years no subject, save perhaps vocational education, has received more attention on the part of school people than that of moral training. The whole school world is awakening to the fact that both the elementary and high school need to give more attention to this moral development and life. To this end many instructive and helpful books, magazines and papers have been issued in the last three or four years. These along with the regular school subjects, are being utilized in our best schools to promote and instill better moral habits and higher moral ideals.

In the elementary school, where the child is passing through the formative period of life, from eight to twelve or thirteen, he should be led to develop specific and definite moral habits—"habits of cleanliness, industry, honesty and obedience," etc., without any special insight into or appreciation of their meaning. The "why" for these things must come later when the child is ready for them. In the high school, or adolescent period, when the boy or girl awakes to a real new life, then of all times in the life of the human being is the time for moral instruction. Now for the first time in the child's experience he gets an insight into the significance of life and its meaning. Morals, as such, get his attention now for the first time. Before this, arbitrary and mechanical habits must rule, while now insight and reason must have full sway, if morals are to be developed. From this time on our acts are moral or immoral, while before this they were almost altogether unmoral. Between the ages of thirteen or fourteen and nineteen, the great majority of boys and girls form and fix their moral and religious judgments and ideals. If the home, or school, or church, hopes to have idealized in the lives of their children the best of this or any civilization, it must see to it that during this adolescent period the proper moral and religious instruction and insight are given.

The school has it in its power to give moral instruction both directly and indirectly. Neither one of these methods

should be used to the exclusion of the other. By direct instruction, with the use of a textbook and supplementary readings, pupils are brought to see in a systematic way the meaning of the moral life. Morality is not all habit. It is insight. Conscientious conduct implies FINDING OUT the right and DOING IT. So knowledge, as well as habit and will, must play a great part in all moral life. If all moral instruction were left to indirect and incidental teaching, the principles of right action would, very probably, never be given. So the great standards of right conduct would never become instruments in the hands of young men and women by which they could pattern their lives. In giving direct instruction in morals, teachers should not follow blindly a textbook, for we do not have any well adapted to do this work, but much of the work should be given orally and in parallel readings in books, current magazines and papers of the day.

Much and very helpful indirect moral instruction should be given in connection with the regular high school subjects. This kind of work, properly correlated with the direct instruction, will help pupils apply to their every-day lives their knowledge of the great moral principles.

Most high schools that give a regular course, or have direct teaching in ethics or morals, place it, and I believe wisely, in the twelfth grade, while incidental teaching is used whenever opportunity presents itself in the class-room or on the playground.

Below are given a few books that are suitable for use in the class. The starred (*) ones are preferred.

*Larned, Joseph N.—"A Primer of Right and Wrong," $ .70, Houghton-Mifflin Co.

*Hyde, William D. W.—"Practical Ethics," $ .80, Henry Holt & Co.

Sharp, Frank C.—"Success: A Course in Moral Instruction for the High Schools," University of Wisconsin, Madison, Wis.

Strong, Joseph—"The Times and Young Men," $ .75, Baker, Taylor.

Dunn, A. W.—"The Community and the Citizen," $ .80, Ginn & Co.

Warner, B. E.—"The Young Woman in Modern Life," $ .85, Dood, Mead & Co.

For Teachers.

DeGarmo, Chas.—"Principles of Secondary Education," Vol. 3; "Ethical Training," $1.00, Macmillan Co.

Dewey, John—"Moral Principles of Education, $ .35, Houghton.

Sessions, Edward O.—"The Essentials of Character," $1.00, Macmillan.

GEOGRAPHY.

Geography in the high schools usually means physical geography or physiography, and it concerns itself primarily with the consideration of the physical phenomena of the earth. The emphasis is laid upon the geological aspect of the subject, and often times the human element as it is influenced by these physical conditions is overlooked and neglected. The science of the subject so engages the writer of the ordinary text-book in physical geography (the teacher will remember that almost all secondary school geographies have been written by geologists), and the teacher who follows it, that no time and thought is given to the most significant aspects of the subject. Since most pupils in the high schools never go to college and so never have an opportunity to study real earth-science; since what they get of pure science in the first year of the high school is worthless without further study, more time and stress should be given to the human side of secondary school geography. This is needed that the great majority of our future citizens who never go to college may get an appreciation of the effects the earth-conditions have upon man and his life. Commercial geography should receive some attention in every course in high school geography.

Believing that the Report of the Committee of the National Education Association on Secondary School Geography, for the year 1909, has given the proper notions of the subject and included the real essentials, I give here their recommendations. I feel that the high schools should attempt to follow these suggestions as far as practicable.

"1. Those parts of mathematical geography which show most clearly how human life is influenced by the relation between the earth and other members of the solar system. Such points as the arrangement of the mathematical and heat zones and the varying boundaries of the latter; the change of seasons; latitude and longitude; standard time and the International Date Line are important.

"2. First in importance among the factors influencing life is climate. Therefore, atmospheric phenomena should receive careful attention. The principles should be applied as fully as time and the

ability of the students permit. The topics which should receive chief attention are the following: (a) The conditions determining the temperature, pressure and humidity of the atmosphere. (b) The great atmospheric movements. (c) Storms, especially temperate latitude cyclones, studied by means of the weather maps, and their relations to crops, floods and transportation. (d) Precipitation; its causes and distribution; and its influence upon occupations and habits of life generally. (e) Weather changes, such as the effect of unseasonable frosts upon crops, and the efforts of man to prevent the damage. The influence of blizzards upon stock on the western ranges, and telegraph and railroad business in many parts of the country. The effects of storms upon wheat, oats, hay and other crops. (f) We urge the importance of a study of the work of the Weather Bureau, having students present specific illustrations of the value of its work. Comparatively few realize the multitude of human interests that are advanced through the operations of this bureau.

"3. A brief study of the ocean as a modifier of climate, as an agent in the destruction and construction of land forms, as the source of certain commodities, and as a medium for the transmission of the commerce of the world.

"4. The larger geographic forms such as plains, plateaus, mountains, valleys, rivers, falls, lakes and glaciers should receive careful study. Human interests and activities are largely confined to the lands, but it is obviously of far greater importance that we should understand our relations to geographic forms than that we should have a thorough knowledge of their evolution, or be able accurately to classify them.

"The amount of emphasis placed upon the study of various geographic forms and processes will depend, in part, upon the location of the individual school.

"5. A study of the larger features of the resources of our country, such as its soils, waterways, water powers, forests and mineral wealth. These features of our geographic environment are so vitally connected with the daily life of every individual, as well as with our national progress, that ignorance of them is a serious matter.

"This study should show the distribution of our resources, their accessibility, their relation to road building, to distribution of population, to development of industries, to location and growth of cities, to commerce, and to social conditions. The work of our government in modifying geographic environment should receive careful consideration.

"6. A knowledge of the general geography of the most important countries and peoples of the world.

"If it be true that a large part of the education of the average individual comes through reading, then it is of the utmost importance that he should be able to read intelligently. This, in the fullest sense,

is impossible unless one's knowledge of geography is wider than that offered by the present high school course in this subject.

"7. Some conception of how the history of nations has been shaped by geographic conditions.

"We do not forget that this should be a vital part of all courses in history, but it should also receive very definite attention in secondary school geography. All nations afford illustrations of this, some more than others. That our own country is a fruitful field is evidenced by such works as Brigham's Geographic Influences in American History, and Miss Semple's American History and Its Geographic Conditions.

"8. The ability to trace, in the large, the relationships between the most important geographic forms and geographic processes, and to appreciate the responses which human life everywhere makes to its physical surroundings.

"In order to make it possible to present the essentials as herein outlined, your committee makes the following recommendations:

"1. Geography, touching as it does the daily life of every individual at so many points, should be, in some form, a required subject in all secondary schools.

"2. The subject should be pursued for not less than one year.

"3. The subject should be presented during the first year of the high school course.

"4. There should be at least five recitation periods per week.

"5. About one-fourth of the total time should be devoted to laboratory and field work. This should by no means be confined to the study of physical geography. Much laboratory work and some excursions should be undertaken in connection with the commercial phase of the subject, and there should be carefully planned exercises based upon maps and models.

"We recommend that about one-half year be devoted to the larger topics in physical geography, with the human side made more prominent than at present, and that the remainder of the year be given to a study of North America and Europe."

By proper selection and emphasis on the part of the teacher, this work can be given very satisfactorily by using one good modern text-book on physical geography, one on commercial geography and a good laboratory manual. The physical and commercial may be combined as in Dryer's High School Geography (American Book Co.).

Those parts of this report that refer to regional and local geography, should be applied to the special conditions that we find in Florida. In many respects Florida is especially rich in geographic material. This should be taken advantage of by the teacher.

Especial attention should be given to the five recommendations of this report. The fifth one is not receiving from our high schools the stress and time that it should. Laboratory and field work for high school geography are just as important and necessary as laboratory work is for the other sciences. A good laboratory manual will give directions as to what can and should be done in laboratory and field. Notes of experiments performed and of things observed should be carefully kept in note-books made for the purpose. This work should go hand in hand with the text-book work. Laboratory manuals contain cross-section paper and map blanks and directions for keeping notes.

Field work is growing in prominence in work in geography and it should continue to grow until all teachers of geography are able to make a success out of it. To be successful with such a trip the teacher must make certain of his field and problems to be studied. He should visit what he desires to have the class study and plan out the whole excursion before he takes the class. By so doing, he will get results that will far surpass any two or three class-room, text-book recitations, on physical geography.

Of the many good text-books and reference books, I give below only a few:

Textbooks: Tarr's New Physical Geography (Macmillan Co.); Davis' Elementary Physical Geography (Ginn & Co.); Dryer's Physical Geography (American Book Co.); Arey, Bryant, Clendenin & Morey's Physiography (D. C. Heath & Co.); Gilbert and Brigham's Physical Geography (D. Appleton & Co.); Redway's Commercial Geography (Scribner's Sons); Trotter's Geography of Commerce (Macmillan & Co.).

Laboratory Manuals: Everly, Blount & Walton's Laboratory Lessons in Physical Geography (American Book Co.); Darling's Laboratory Manual in Physical Geography (Atkins, Metzer & Grover); Trafton's Laboratory and Field Exercises in Physical Geography (Ginn & Co.); Tarr and Von Engeln's Laboratory Manual of Physical Geography (Macmillan Co.).

Reference Books for Teachers: Journal of Geography, $1 per year (Journal of Geography, Univ. of Wis., Madison, Wis.). Redway's The New Basis of Geography (Macmillan Co.); Sutherland's The Teaching of Geography (Scott, Foresman & Co.); Davis, King & Collie's The Use of Government Maps in School (Henry Holt).

Equipment for Laboratory: A good supply of topographic maps issued by the U. S. Geological Survey. These may be obtained at a nominal cost by applying to the Director, U. S. Geological Survey, Washington, D. C.; wall maps; one or more globes; bar magnet; daily weather maps; magnet compass; standard barometer; an aneroid barometer; rain gauge; several thermometers; dilute hydrochloric acid; mercury; and mineral and rock fragments (secure all important varieties. The many other small things that will be needed can be secured at small cost in almost any small town. Laboratory manuals will give full directions. The stereoscope and views will add much to all geography teaching.

For this equipment teachers and school boards may address either of the following: Geography Supply Bureau, Ithaca, N. Y.; Central Scientific Co., Chicago.

HISTORY AND CIVICS.

By L. L. BERNARD, PH. D.,
Professor of History and Economics,
The University of Florida.

History.

I. EQUIPMENT.—The minimum requirement in the way of equipment for the successful teaching of history in the public schools is not essentially different from that in colleges and universities. It is both personal and mechanical. First, the teacher must be capable of an intelligent interpretation of both the book facts of history and of the material equipment with which he supplements these in his teaching. This personal equipment should consist of the following things at least, as well developed in each case as the circumstances allow. The teacher's interest in history must be more than a romantic one; it must be scientific—it must move the teacher to interpret past events in the light of present happenings. The teacher must be as conversant as possible with the geography of the regions connected with the history taught. He also should know as much as possible about the manners, customs, religions, political ideals and practices, and the education among these same historic peoples, if he expects to be able either to understand or to make clear the significance of the chief events which he brings before his students. Finally, he should cultivate facility in using and directing the use of maps and reference books in connection with his teaching. Such facility, if consistently utilized, should prove not merely a time-saver for the instructor, but should also greatly assist and vitalize the learning process on the part of the student.

The necessary material equipment should, at the least, consist of some good maps—the more the better—and reference

books, which, while they are accurate and informative, are yet not beyond the capacity of the grade of students who use them. The best maps for the teaching of history are relief maps showing the conformation of the country and bringing out especially such elementary geographical conformations as mountains, rivers, valleys and seas. These are the four chief physiographic facts with which the writer, the teacher and the student of history have to deal, and they should be made as accessible as possible to the attention. Rivers and seas can be represented fairly well on flat or surface maps, but the full historical significance of mountains and valleys can never be so depicted. Since most school boards will regard the price of relief maps as prohibitive, surface maps should be chosen with the greatest care possible. Many of the wall and case maps now sold to schools are inferior to those found in the textbooks themselves in almost every respect except size. Maps should be seen before they are purchased where this is possible. In some cases the teacher may have the privilege of directing the construction of his maps, though such an opportunity must necessarily be exceptional. In addition to the four physiographical features already mentioned certain climatic and meteorological facts should also be indicated on historical maps. Mean and extreme temperatures and the annual or seasonal humidity are the most important of these. The character of the soil should also be made apparent, especially when it is exceptional. Altitudes should be printed at important points on both relief and surface maps. The chief political, economic and social characteristics of the region should of course be indicated. Not alone the political boundaries of states, but also the groupings of races and possibly of religions should be shown. Racial and religious divisions are much more distinct the further back in history we go and they play a profound role in the making of history—as the well-equipped teacher of history knows. Finally, the maps should show the main lines of transportation and communication—whether foot paths, military roads, navigable rivers, canals, railroads, or ocean lines—and the location and the economic, political and social characters of cities. The more

one studies history the more vital the connection he discovers between transportation routes and the location of cities. It is also important from the standpoint of historical interpretation to know what activities are carried on in the city. Is it an industrial or a capital city? Is it the home of science, of literature, of universities? Why did a city spring up at this place? Why is it of this particular character? What effect has it had on the life and history of the people? Such questions are at the very heart of modern methods of historical study and teaching. The information from which the student may answer them should as far as possible be on the maps. What cannot be shown on maps should be readily accessible in the library. Finally, maps should not be devoted exclusively to military campaigns and changes in boundaries lines. Even more they should portray economic and social facts and conditions. Of course such maps are not at present easily obtainable, but as a standard they represent the irreducible minimum which must be attained before the teaching of history can come into its own.

The third minimum of equipment—that of reference books—is probably more immediately attainable in a satisfactory way than the second. For public schools, books on biography are among the most useful. Biographies hold the interest of the student and, if they are properly written by men with a broad outlook upon the questions of the times, they provide a very feasible approach to an understanding of the bigger historical movements with which these leading men have had to deal. Such books can be procured reasonably. Well chosen books of supplementary readings, of which there are now many, are even more valuable when properly used. Also, some of the more simple general works on history are indispensible. Finally, there should be some of the best texts for cross-reading. A fair historical library of this sort may be obtained for fifty dollars or even less, a pretty good one for one hundred dollars, and an excellent one for from two hundred to three hundred and fifty dollars. The buying of standard histories in sets as well as of expensive travel books should not be undertaken on the basis of a fifty dollar fund, and should be carefully guarded

even on the one hundred dollar basis. So-called historical novels should not be used in the teaching of history. Even where their references as to time and place are accurate they distort the true historical perspective of the epoch and almost invariably encourage a sentimental rather than a scientific attitude toward history.

School boards should be made to see that maps and books are as essential to the proper teaching of history as are apparatus to instruction in physics and chemistry.

II. METHODS.—Teachers with initiative will and should vary their methods to fit the time at their disposal, their students, and the equipment. But for the successful teaching of history three general methods are necessary, allow the individual teacher to adapt these as he will: class recitations, reports, and map-study and map-making. The textbook is an institution which doubtless has come to stay; but it is capable of being overdone to the point of stupidity. Assigned readings and quizzes on the text are necessary to a proper understanding of continuity and relationship in the development of history. Yet no textbook contains all that a progressive teacher will seek to have his students learn. Especially is the textbook method likely to prove defective in bringing out the connections between geography and history and between history and present-day life. Whether the teacher uses the text just as it is or omits some things and adds others is a matter for his own judgment. But whatever is taught from the textbook should be taught thoroughly. That is, everything recited on by the student should be perfectly clear to him, and such clearness involves at least two things. The fact itself, if vaguely or briefly stated in the text, must be expanded and made more definite by the teacher or from supplementary reading. Nor must the student be allowed to make general statements. His knowledge of the fact must be thoroughly definite, though not overburdened with useless or disconnected details. Secondly, the student should be made to see the connection of the event studied with the wider historical movement. He should see it not as complete in itself, but, for example, as a step in a national evolution, in a racial or religious con-

flict, as one of a series of conflicts (physical or moral) between democratic and aristocratic principles, or even as a problem in civilization itself. All history culminates in the present and this historical continuity is the one big principle above all others that the student should be made to see clearly. The study of historical facts as things in themselves, beginning and ending in themselves, is little better than time wasted.

But part of the knowledge of the meaning of historical facts is to KNOW the facts themselves. For the more we study a historical event the more it leads over into another event. It is at this point that assigned readings and reports are of most value. If a choice is necessary, it is better to cut down the number of the isolated facts in the text which the student is required to keep in mind for examination and to have him concentrate his efforts on a better understanding of some of the more important ones—more important, of course, from the standpoint of the general development of the historical process rather than in the sense of the noise of battle, personal catastrophe, or mere sensationalism. Assigned readings—the performance of which may be checked up by the required use of note-books or apt class questions well distributed—may serve for this purpose. But the interest of the student will be greatly stimulated and some spirit of healthful competition may be produced if oral or written reports are required. Oral reports are best, where the teacher can find time for them; and such time may often be secured by substituting in part written exercises on the less important matters of the text. If the subjects of these reports are frequently biographical the teacher should instruct the student beforehand to bring out the relationship of the man whose life is studied to his time and the general history of his country rather than his purely personal traits, however interesting the latter may be.

The number of reports, at least of those given orally, may vary somewhat with the size of the class, the policy of the teacher, the equipment of the library, and the length of the report itself. A biographical report, involving the reading of a book, should not be required of a student oftener than once

a month or less frequently than once in three months. Briefer reports on assigned problems may be called for at the discretion of the teacher. The students must be taught to regard these reports seriously; they should be encouraged to criticise one another's work; and they should be carefully graded on this work. Such work is likely to interest the pupil largely in proportion to the response he gets from it, and this is why oral reports are so much more valuable than written ones.

So much for the presentations of historical facts in their narrower relations. The simplest and most effective way to get students to see history in its causal aspects, to get them to look at any particular event (such as a war), or some broad national or international movement (such as the continual dominance of some one nation over others), or to conceive of history as an evolutionary process, is to teach them the geographical and industrial aspects of history. The map is the best way in which to bring out the geographical relations of history, though descriptive literature will also be of considerable value. Maps should be used constantly by the teacher in connection with the recitation. For instance, he should trace the movements of national boundaries with reference to natural barriers, such as rivers, mountains, seas; and he should show how transportation facilities break down these natural boundaries; he should point out in actual instances how river valleys have been the birth-places of nations, and how the great modern nations center in agricultural plains; and he should explain to the student that those nations which can control the ends of trade-routes are the prosperous peoples, and that the world's great cities have sprung up at either the crossing, converging or breaking of such routes or at the points where power and raw material meet readily to permit the growth of great systems of manufactures. Careful study by the teacher of maps and of books on commercial geography and social geography will suggest to him many interesting relationships between geography and history similar to the above, which can be used in interpreting to the students the history of any particular people.

But the teacher should not do all of this interpreting for his students. They should be encouraged to study maps and especially to make them. Base maps may be secured cheaply, or the student may make his own maps entire. In either case he should be required, so far as is possible, to plot upon his map the history of the period which he is studying. He should show, for example, in the history of a campaign (as, for instance, Napoleon's invasion of Russia) the effect of the means of transportation and communication, of temperature and humidity, of the fauna and flora (food supply), and of the distance from bases of supplies upon the relative success of contestants. With a little investigation and thought this can be done fairly easily, and the understanding of the student will be improved to a gratifying degree. Not too many maps should be assigned to any one student, of course, if he is to do them well; and the teacher may find it best to assign a different map-subject to each student or pair of students. The finished maps should be subject to dignified criticism and appreciation by other members of the class. If the map work is carried out faithfully by both teachers and students much may be done to keep a continuous thread running through history and to break down the barriers which both students and teacher too often find built up between the histories even of contemporaneous nations. All Europe, for instance, has for several centuries had a closely-related history, yet the average student sees it only as the history of so many different nations. Very few students probably are in the habit of thinking of Charles XII of Sweden and Louis XIV as contemporaries, because they have read about them fifty or one hundred pages apart in the text, while they should have seen them on the same map and have plotted the events connected with them in graphic outlines.

The geographical method of unifying history is the simplest one. The more difficult task of showing the development of political, social and economic tendencies through history as a whole must be undertaken primarily by the teacher, with what help he can secure from well chosen reference works. Here the teacher's purpose should be to

show the continuous growth of history up to the present time in respect to ideas, customs, religious beliefs, inventions, political forms, economic and industrial progress and social legislation.

The use of those minor methods in teaching history, such as illustration by means of pictures, the telling of apt stories by the teacher, the conducting of question contests between rival groups of students, the keeping of an honor roll for the best work in different lines, the publishing of the highest grades, etc., are best left to the discretion of the individual teacher. Directions regarding them may be found in any good teachers' journal. The use of pictures can be made especially valuable when the board can be persuaded to procure them and if cabinets can be secured in which to preserve them. A few representative pictures of men and places can be kept on the walls of the school room. As compared with maps and books, pictures are much less important, however, since they cannot portray historical development and since their spatial reference is necessarily very much restricted. If the school owns a lantern, it can be used to great advantage.

III. Subject Matter.—The subject matter taught in any course in history is determined necessarily largely by the text used. For the teacher to disregard either the order or the emphasis of his text is likely to prove very confusing to the young student who sees his subject mainly through the eyes of his author. If the teacher attempts either type of modification he should be very careful to explain to the student just what he is doing and why he does it. Unfortunately, history texts are not perfect—at best they are only individual selections and interpretations of those past events which appeal particularly to their authors. Therefore the best teachers will have to supplement the textbook somewhat in the manner suggested above. The most important modifications for the teacher to make are those which will bring out the continuity in history and thus illustrate to the student the vital relations of the present with the past. None of our numerous texts do this adequately. The teacher may best accomplish this for his students by preparing

for himself an outline of the important occurrences, movements and tendencies in each field of history which he is teaching. With this developmental outline to refer to he will be able to hold his teaching together in some order and to bring out the social and economic continuity in his subject, especially if he diverges from the text to any considerable degree. In this connection, books on the economic and geographic interpretation of history will be of great use to the teacher. A few such books will be suggested at the end of this paper.

It may be of some use to teachers to have this paper close with a brief selected list of books, arranged according to the purpose which they are to serve. I have marked those which I regard as particularly valuable as texts or for supplementary reading, and should advise the purchasing of those so marked before others, where the library funds are closely limited. The present practice in the high schools of Florida in regard to the teaching of history is to distribute the work over the four years in the following manner: First year, Ancient History, extending to about 800 A. D.; second year, Mediaeval and Modern History, from 800 A. D. to the present; third year, English History; fourth year, American History and Civics. This is an excellent scheme and should not be varied except where circumstances render it imperative. If only three years or two years of high school work can be given, it might be well to combine the two separate courses in Ancient History and Mediaeval and Modern History into one course in General History or to dispense with English History, as a more special field. In the better high schools, particularly when students have had a strong grammar school course in American History, the history course in the last year of the high school may be given over primarily to Civics and closely related aspects of the social, economic, and political history of our country.

The suggested list of books follows.

GENERAL HISTORY TEXTS:

*Myers, General History (Ginn & Co., Atlanta).
Colby, Outlines of General History (American Book Co., Atlanta).

ANCIENT HISTORY TEXTS:

*Myers, Ancient History (Ginn & Co.).

*West, The Ancient World (Allyn & Bacon, New York).

West, Ancient History (Allyn & Bacon).

MEDIAEVAL AND MODERN HISTORY TEXTS:

*Myers, Mediaeval and Modern History (Ginn & Co.).

West, Modern History (Allyn & Bacon).

Harding, Essentials in Mediaeval and Modern History (American Book Co.).

SUPPLEMENTARY READING FOR THE ABOVE:

*Home University Library (Henry Holt & Co., New York). Fifty cents the volume. This series contains some of the best brief works on special periods and problems in history, written from the modern point of view.

The Story of the Nations (G. P. Putnam's Sons, New York). $1.50 the volume. This series is more complete than the one preceding, but the viewpoint is less modern.

Epochs of History (Chas. Scribner's Sons, New York). More difficult; good.

Robinson, Readings in the History of Western Europe (Ginn & Co.). 2 vols., $1.50 each.

ENGLISH HISTORY TEXTS:

*Coman and Kendall, History of England for Schools and Academies (Macmillan Co., New York).

*Cheyney, A Short History of England (Ginn & Co.). Too advanced for most high schools.

Andrews, English History (Allyn & Bacon).

Walker, Essentials in English History (American Book Co.).

Montgomery, Leading Facts of English History (Ginn & Co.).

SUPPLEMENTARY READING IN ENGLISH HISTORY:

*Kendall, Source Book of English History (Macmillan & Co.).

Cheyney, Readings in English History (Ginn & Co.).

Cheyney, Introduction to the Industrial and Social History of England (Macmillan & Co.).

AMERICAN HISTORY TEXTS:

*James and Sanford, American History (Scribner's).

*Adams and Trent, American History (Allyn & Bacon).

McLaughlin, History of the American Nation (D. Appleton & Co., New York).

Muzzey, American History (Ginn & Co.). This is by far the best contemporary high school text in American History, except for certain prejudices of the author on sectional questions.

Hart, Essentials in American History (American Book Co.).

Montgomery, The Student's American History (Ginn & Co.).

Lee, Advanced History of the United States (B. F. Johnson Pub. Co., Richmond, Va.).

SUPPLEMENTARY READING IN AMERICAN HISTORY:

*Hart, Source Book of American History (Macmillan Co.).

*Hart, American History Told by Contemporaries (Macmillan Co.). 4 vols., $7 the set. This is a very valuable collection of source materials for those libraries which can afford it.

Coman, Industrial History of the United States (Macmillan Co.).

Brigham, Geographic Influences in American History (Ginn & Co.).

Semple, American History and Its Geographic Conditions (Houghton Mifflin Co., Boston).

Johnston, History of American Politics (Henry Holt & Co.).

McMaster, History of the People of the United States (D. Appleton & Co.). This most valuable of our American Histories, to be completed in eight volumes, should be purchased by those libraries which can afford it.

Wilson, History of the American People (Harper & Bro., New York). Briefer than McMaster but able and modern in outlook.

BIOGRAPHY:

The Macmillan Company's seventy-five cents series of biographies is in the main good, both from the standpoint of authorship and subject matter.

The American Statesmen series of Houghton Mifflin Co. also contains some good titles, as do a number of other series issued by this and other publishers.

The type of biography to be avoided is that which gives merely a personal narrative of the man without treating adequately his relation to the public questions of his time and country, such as the Abbott series.

HISTORICAL ATLASES:

*Shepherd, Historical Atlas (Henry Holt & Co.), $2.50. This is the best atlas covering the whole field.

Dow, Atlas of European History (Henry Holt & Co.), $1.50.

Muir, School Atlas of Modern History (Henry Holt & Co.), $1.25.

BOOKS SUGGESTED FOR TEACHERS:

In addition to the above mentioned works, especially the social and industrial histories of Cheyney and Coman, the volumes by Semple and Brigham, and certain volumes from the Home University Library, the following books will be of particular value to the teacher:

Bourne, The Teaching of History and Civics (Longmans, Green & Co., New York).

Robinson, The New History (Macmillan Co.).

Seligman, The Economic Interpretation of History (Macmillan Co.).

Semple, Influences of Geographic Environment (Henry Holt & Co.).

Guizot, History of Civilization in Europe (A. L. Burt & Co., New York).

Day, History of Commerce (Longmans, Green & Co.).
Webster, History of Commerce (Ginn & Co.).
Graves, A History of Education (Macmillan Co.).
Murphy, Problems of the Present South (Longmans, Green & Co.).
Murphy, The Basis of Ascendancy (Longmans, Green & Co.).

Note: The writer of this paper has received many valuable suggestions from teachers of history of the high schools of the State. Most of these he has been able to incorporate in the paper, much to its advantage. Further suggestions will be welcomed.

Civics.

I. INTRODUCTION.—The old method of teaching civics, both in the public schools and in the Universities, was to teach some textbook which gave merely an analysis of the state and federal constitutions. This method persisted in spite of the fact that there had grown up in our government a great body of recognized practices which were unknown to the constitution and in many cases not even covered by statutes. The method of nominating candidates by convention, before the introduction of the direct primary system, is an example of this. The Universities were the first to depart from the method of teaching by constitutional analysis and soon the public schools followed suit. Along with this change from the teaching of constitutional law and analysis to the teaching of actual government and politics, there has also come a broadening of the scope of civics so as to include such subjects as economic and social geography, local industries, transportation, and public health and sanitation. In our larger and more advanced educational institutions these newer subjects are included in courses known as economics and sociology, but since usually the high school cannot give more than one course to the teaching of all these matters together it is better that they should all be taught under the title civics. Already our more advanced schools are so including these subjects, while some of our larger city schools, such as Chicago and Cincinnati, have established one or more separate civics courses dealing exclusively with some aspect of local affairs. In Florida it is probably better at present to group all these matters in one general civics course.

The exact content of such a course will vary somewhat with each individual teacher, according to his preparation and interests. The following is a brief outline of a suggested course, which the teacher can vary somewhat as his needs and facilities require. At the end of the outline is a brief bibliography which will serve to direct the teacher and student to the economic and sociological material which is not included in a text.

II. Local History.—It is well to start off a general high school course in civics with a review of local history. The student should be encouraged to work out, under the guidance of the teacher, the facts about early settlement and subsequent development of the community life. Much information can be obtained from old families in the community, and some families will have records which they will be glad to place in the hands of the teacher for careful and considerate use. The teacher can also have access to the state records and possibly to books dealing with local subjects. All facts should be reduced to written form and the best papers kept, so that from year to year the teacher and the school may collect a mass of dependable facts regarding the history of the community from the date of settlement to the present. Such history should, of course, be brought into relation with the more general state history so as to bring out the proper perspective. Such a study will have its reward in the interest awakened in the student and in the increased pride of community which he has.

III. Local Geography.—The subject which should be taken up next or possibly in connection with the above, is the geography of the students' community and the state. Most students do not learn enough geography for the practical everyday purposes of life. The purpose here, however, is not to provide a much needed review, but to bring out the relation of the soil, climate, rainfall, topography and like matters to the life of the community. The student should know the different soils and rock formations, the kinds of crops that can be and are grown in the community and state. He should trace on maps the local waterways (how-

ever small), the layout of roads (dirt and rail), and the relationship of town to town. In this way he will get a functional view of the topography and resources of his community as well as a knowledge of the community life. He should know the population by race, and if possible, by age and sex, of his town, county, and state.

IV. Local Industries.—It is an easy step from local geography and demography to a study of local industries. Members of the class should make lists of all the industries in the community and of all the occupations engaged in. The statistical abstract of the 13th census and annual Statistical Abstract of the United States will give most of these facts. A school which is really in earnest about such a course will usually be able to obtain a complete set of the census, or at least of needed bulletins. But the student should be encouraged to obtain as many of these facts as possible from his own personal observation and investigation. The number of farms in the county and their value; the value and output of manufacturing or mining establishments and the number, age and sex of the people they employ; the wages and living conditions of the employed; the products grown locally for shipment to distant markets, the prices obtained and the relative profitableness of different market commodities; the number of banks, their individual and aggregate deposits, the meaning of bank statements, are examples of the types of subjects which can be studied with profit and interest to the student and teacher.

V. Transportation and Communication.—The way in which the community is connected with the outside world should be studied in this course. What railroads run into your town and county, with what other places do they connect you, with what other railroads or steamship lines do they have operating agreements, what commodities do they carry chiefly, what is their mileage, what rates are charged to important points on different commodities, on what principle are rates made, what have the transportation lines done for the development of your community? These and other facts will have practical value for the students in

after life. How many means of communication has your city? What are they? Where do the rural free delivery routes run? With what other systems does your local telephone system connect? What newspapers and periodicals are read in your town? The students' attention should be called especially to the profound effects of transportation and communication upon the social and economic life of the community.

VI. Organized Community Life.—What is the character of the organized life of your community? How many churches, schools, lodges, and other social and educational organizations have you? What do they do for the community? What is their relative membership? Have you any civic associations working for the improvement of your town?

VII. Public Health and Sanitation.—What arrangements of this sort has your community? What are the state laws and organizations for public health? Are there city ordinances on this subject? Are they enforced? You can find out from the mayor. Are the state health laws—especially the one about screening houses against flies—enforced?

Where does the water supply come from? Is it free from contamination by sewage, cess pools, or drains? Dug wells in a town are always dangerous to health, and if they are open they are doubly dangerous. Do you know of any wells and cess pools close together? This means danger from typhoid fever.

Has the town a sewerage system? Where does it empty? If cess pools are used instead, what steps are taken to prevent typhoid and dysentery infection from them?

Is there inspection of dairies? Milk carried in cans or bottles which have been washed with impure water may carry typhoid and other filth diseases. Many cows also have tuberculosis. Milk from such cows should not be permitted to be sold. How can tests for tuberculosis in milk cows be made?

The students should be instructed in the ways in which flies carry typhoid, dysentery, smallpox, tuberculosis and other diseases, as well as in the fact that mosquitoes are the

sole source of malarial transmission. The advisability of screening all doors and windows against flies and mosquitoes and of protecting all food against flies and the extermination of flies by traps and by destroying their breeding places, should be shown. Flies breed only in filth; remove all filth within a distance of four hundred yards and flies will disappear. Remove all stagnant or still water (including that in open cans, barrels, etc.) within a distance of three hundred yards and there will be no mosquitoes.

Have you medical inspection of school children in your town? All the large city schools, and even the small city schools in some states, now have it. What is it? What is the good that it does?

VIII. Local Government.—The subjects indicated above have not as yet crept into most textbooks on civics, largely because of their local character and because of the newness of the subjects themselves. For this reason a more extended outline of these points has been given for the assistance of the teacher. As we come to purely governmental matters more of the construction of the course can be left to the teacher and the textbook. A convenient method of approach to the study of government is by the way of the subjects outlined above, many of which are only indirectly under the control of governmental authority. Public health, however, is properly a matter for governmental control, either by the city or the state. Local government may be conveniently taken up from the three-fold standpoint of ordinance making by the city council or county commissioners; of the enforcement of laws and ordinances by mayor, sheriff, constable, and the functions of the county officers; and of the administration of justice. The extent and degree of success of municipal ownership of public utilities in the city under consideration should also be studied first hand. If the students are taken to the offices of the various local officials to see as far as possible the actual working of local government the teaching will be greatly facilitated and the understanding of the pupils will be greatly improved.

IX. STATE GOVERNMENT.—This should be taken up in much the same manner. The legislative, executive and judicial features of the government may be studied first. Special administrative features, such as taxation, education, and the administration of charity and correction, should be considered in some detail—both from the standpoint of constitutional and statutory provisions and from the viewpoint of actual methods of administration which the student can himself observe. The student should always be encouraged to see as much as possible of the government in action, as well as read about it. Other matters to which he can apply this double rule of observation and reading are those of citizenship, including one's civil rights under the law and constitution, and the workings of the nominating and party system, suffrage, etc. In this state the primary has supplanted the convention. The student should understand thoroughly its methods and advantages. One thing above all others which the student should get from his course in civics is the knowledge of how to exercise properly his chief function as a citizen in a democracy. Other subjects, such as the working of the initiative, referendum, and recall, may be studied with profit.

X. NATIONAL GOVERNMENT.—This should by no means be neglected, though under our dual system of government the chief responsibilities of citizenship are exercised under state government. Besides taking up the three main divisions of the government in some detail, the teacher will do well to introduce a few of the more general subjects of primary importance, such as the advisability of the direct election of senators, direct nomination and election of the president, the tariff, a national income tax, imperialism and the government of colonies, the new nationalism.

Throughout the above course the constant aim should be to give the student a practical working knowledge of his obligations and privileges as a member of his community and state. The teacher will have to adapt his methods to his materials, but it is more than likely that he will find the report method well suited to that part of his work not wholly covered by textbooks.

VALUABLE SUPPLEMENTARY TEXTS:

Guitteau, W. B., Government and Politics in the United States (1911), Houghton Mifflin Co., Boston, $1.

Garner, J. W., Government in the United States (1911), American Book Co., Atlanta, $1.

Marriott, C., How Americans are Governed (1911), Harper & Bros., New York, $1.25.

Forman, S. E., The American Republic (1911), Century Co., New York, 90 cents.

WORKS ON INDUSTRY AND CONSERVATION IN THE UNITED STATES:

Allen, Nellie B., Industrial Studies in the United States (1911), Ginn & Co., Atlanta, 65 cents.

Bartlett, D. W., The Better Country (1911), C. M. Clark Publishing Co., Boston, $1.50.

Van Hise, The Conservation of Natural Resources in the United States (1910), Macmillan Co., New York, $2.

PUBLIC HEALTH:

The Public Health Movement (March, 1911), Annals of American Academy of Political and Social Science, Philadelphia, $1.50. (Very good.)

Allen, Wm. H., Civics and Health, Ginn & Co., Atlanta, $1.25.

Florida Health Notes (Monthly), State Board of Health, Jacksonville. Free to teachers.

Bulletin Chicago School of Sanitary Instruction (weekly), Department of Health, Chicago. Free to teachers.

FREE GOVERNMENT PUBLICATIONS.

Special Bulletins of Census on specified subjects.

Statistical Abstract of 13th Census.

Annual Statistical Abstract of United States.

Bulletins of Bureaus of Labor, of Corporations, of Children, of Marine Hospital Service.

Civics Syllabus for Teachers, Cincinnati Public Schools.

Note: Write to Superintendent of Documents, Washington, D. C., for list of free publications on any subject in which you are interested.

LATIN.

By Jas. N. Anderson, Ph. D.,
Dean of the College of Arts and Sciences and Professor of Ancient Languages,
The University of Florida.

The study of the Latin language is peculiarly well adapted to the High School course. There are many able educators who believe that all students who intend to take any sort of a collegiate course should be well grounded in High School Latin.

Here are some of the reasons why Latin should be studied:

1. To drill and exercise the mental faculties. This study constantly calls into play (a) observation, (b) imagination, (c) memory, (d) reason.

2. To aid in the mastery of English and other modern languages.

3. To aid in the study of literature and history and in solving the problems of government and of life.

Comparison is at the bottom of all knowledge and in order thoroughly to understand the mechanism of language it is necessary to study languages. This is especially true of English since our tongue has lost so many of its inflections.

If the student is to have but one foreign language, why Latin?

(a) Because it is so close kin to English and so large a part of our vocabulary is made up of words from the Latin.

(b) Because it is sufficiently different from English and so rich in inflectional forms and syntactical distinctions as to give one a good idea of grammar and linguistic possibilities.

(c) Latin is difficult enough to furnish excellent discipline for the mental faculties.

(d) Latin is a great reservoir from which modern languages, literatures, and civilizations have sprung or at least been irrigated. Its historical influence invites to the study of the language and literature.

(e) Latin textbooks are excellent because the subjects have been worked over so often and so thoroughly.

Assuming then that Latin is to be taught in the High School, the next question is, How is it to be taught?

Teachers will vary somewhat in the handling of this subject as well as all other subjects. Every teacher must at last decide for himself just how he can best present his subject, and most teachers will find it wise to vary their methods somewhat and adapt them to the varying needs and capacities of their classes. By way of suggestion the following courses are outlined.

First Year Latin.

Some good book for beginners should be used such as Bennett's First Year Latin, Collar and Daniell's First Year Latin, D'Ooge's Latin for Beginners, Moulton's Introductory Latin, Pearson's Essentials of Latin, or Potter's Elementary Latin Course. This list is arranged alphabetically and does not claim to be exhaustive. The teacher, where he has free choice, should take pains to select a book that suits him. But when he has found a good book, he need not cling to it slavishly but may very well vary it occasionally, partly as a rest to the teacher, partly to prevent pupils getting undue help passed down from class to class.

Let no one imagine that the teaching of Beginners' Latin is an easy task or one that just anybody can perform. One needs to know a good deal of Latin and to be a good teacher to handle this work properly. Perhaps there is no more difficult year of Latin. Certainly there is none more important. On this hinges the whole Latin course. If this year's work is thoroughly mastered, the succeeding years should never offer very great difficulty. If this work is not thoroughly done, it is very probable that the student will never make a Latinist. His whole course will very likely be slip-shod and unsatisfactory.

What, then, should be done this first year?

1st. Teach the Roman pronunciation. Make the pupils pronounce carefully and accurately every Latin sentence they have during the entire year. This is not time wasted. In addition to the pronunciation, the pupils get a clearer impression of the Latin words and a better feeling for the language.

2nd. The pupils must learn the forms and inflections. This is absolutely necessary if the students are ever to master Latin. How is this to be obtained? Drill, drill, drill. Repeat, repeat, repeat. Vary, vary, vary. Have the forms given orally. Have them written on the board. Have them put in note books. Above all, have abundant practice, partly oral, partly written, in turning easy sentences from Latin into English and from English into Latin.

3d. At least the most common constructions and the regular rules of syntax must be mastered. Here also constant practice must be given not only in using the constructions but also in interpreting and explaining them.

Second Year Latin.

During this year usually four books of Caesar are read.

Unless the student in his first year gets some practice in reading connected prose, either simplified Caesar or other selections, he will find the transition to Caesar rather difficult. The main thing to bear in mind is to start with short lessons and gradually increase them. Also keep up the writing of Latin. Have three or four sentences put on the board every day while other members of the class are reciting a short lesson on grammar or reading a review lesson in Caesar. Also have written work submitted at least once a week, occasionally a chapter of Caesar to be turned into English, but more often English sentences to be rendered in Latin. A grammar should be used as a reference book and also for systematic study and recitation. During the first two years, at least, there should be a good deal of review work and during all years a good many written examinations.

Third Year Latin.

During this year most schools give six orations of Cicero.

The work should be given very much like the second year, with prose composition and grammar.

Fourth Year Latin.

This is usually six books of Virgil's Aeneid. It is often well to omit one or two books of this, say the third and the fifth, and vary the course by giving the pupils a taste of Ovid.

In this year the scansion must be given from the very beginning. Let the pupils hand in the metrical scheme of a few lines each day and have them read a few lines in class. After a while the written scansion may be omitted, but the oral should be increased until sometimes the whole lesson is read metrically.

The prose composition and the grammar should by all means be continued as in previous years. Right here is a radical and fatal weakness in the Latin course in many High Schools. They drop prose composition and grammar as soon as they begin Caesar. The pupils, and perhaps the teachers, think they are reading Caesar, Cicero, and Virgil in this way, but they are mistaken. It is all guess-work with them. As a rule, their only conception of reading Latin is to take out a Latin word and stick in an English one, to a large extent disregarding Latin terminations and not even taking pains to make sense.

In regard to editions of these authors, grammars, and prose compositions, I will not attempt to give a list, partly because there are many good works and the teacher will easily be able to find something satisfactory, partly because I have not had occasion lately nor have I leisure now to examine very many of the recent works in these lines, and I do not care to make invidious distinctions by recommending a few with which I happen to be acquainted when there may very well be others just as good which I have not examined.

Greek.

It may not be out of place to add here a word on the teaching of Greek.

The method of teaching Greek is in every way very similar to the method of teaching Latin. I will not here give an outline of the various courses, but wish merely to call attention to the fact that the study of Latin is greatly facilitated by the parallel study of Greek and that Greek in itself is an admirable study, one that does not deserve to perish from the land.

The Nebraska High School Manual (1908) says:

"There is probably not an educator of mark in the world who would not regard the general ignorance of Greek throughout a community or a state as a profound misfortune."

Books of Reference.

I subjoin here a list of books of reference which may prove of value to some schools.

The High School Library should possess several good editions of each of the authors read in the different classes, several Latin grammars, including some of the more advanced, a few works on Latin prose composition, and some Latin dictionaries, including Harper's Latin Dictionary, American Book Company, $6.50.

Add as many of the following as can be afforded:

Harper's Dictionary of Classical Literature and Antiquities, edited by H. T. Peck, American Book Co., $6.

Abbott's Roman Political Institutions, Ginn & Co., $1.50.

Judson's Caesar's Army, Ginn & Co., $1.

Munro's Source Book of Roman History, Heath & Co., $1.

Prescott & Dodge's Private Life of the Romans, Sanborn & Co., $1.

Fairbank's Mythology of Greece and Rome, Appleton, $1.50.

Gayley's The Classic Myths in English Literature, Ginn & Co., $1.50.

Gow's Companion to School Classics, Macmillan & Co., $1.75.

Platner's Topography and Monuments of Ancient Rome, Allyn & Bacon, $3.

Lanciani's Ruins and Excavations of Ancient Rome, Houghton, Mifflin & Co., $4.50.

Holme's Caesar's Conquest of Gaul, Macmillan & Co., $6.50.

Boissier's Cicero and His Friends, Putnam, $1.75.

Guhl & Koner's Life of the Greeks and Romans, Appleton, $2.50.

Forsyth's Life of Cicero, Scribner, $2.50.

Mackail's Latin Literature, Sbribner, $1.25.

Fowler's Julius Caesar, Putnam, $1.50.

Sellar's Roman Poets of the Augustan Age, Virgil, Macmillan, $2.25.

Kiepert's Atlas Antiquus, Sanborn, $2.

Also some wall maps.

Ferrero's Greatness and Decline of Rome, Putnam, about $2.50 per vol.

Books for Teachers.

Bennett and Bristol—The Teaching of Latin and Greek, Longmans.

Hecker—The Teaching of Latin, Schoenhof.

Hale—The Art of Reading Latin, Ginn.

Kelsey—Latin and Greek in American Education, Macmillan.

The Classical Journal, The University of Chicago Press.

The Classical Weekly, Teachers' College, New York City.

MANUAL TRAINING.

By A. Julius Wiechardt, M.E., M.M.E.,
Professor of Mechanical Engineering,
College of Engineering,
University of Florida.

The Manual Arts, or Mechanic Arts, are so many in number that the field included by such terms well nigh covers all of man's industrial occupations, and concerns itself with the technical manipulation of all kinds of material.

Under the terms mentioned a very great variety of different manual arts are taught at various institutions in this country. It is consequently quite essential to success, to start with a perfectly clear conception of the vastness of the field that may be covered; and what is of even more importance, an equally clear idea of the particular part of the field that may profitably be covered in any particular instance.

By common consent it has become customary to limit the field of instruction in mechanic arts to working in wood and metal, although there exists no satisfactory reason for so doing, except possibly financial ones. Among the public schools wood and iron are the chief materials used; though leather and sheet brass are used in the intermediate grades and soft wood or paper in the primary grades.

The working of these materials naturally falls under the classification of certain trades, so that we find the terms Carpentry, Cabinet Making, and Pattern Making designating the classes for wood working; whilst Forging (blacksmithing), Foundry (moulding and casting), and Machine Shop Practice designate the classes for working metal. Courses of instruction in these trades are given various names, such as Mechanic Arts in the universities and colleges; Manual Training, Industrial Education, etc., among the public schools; and more recently Vocational Training has arisen

to indicate more clearly the attempt of special institutions to teach the trades.

Manual Training seems to be the name most commonly used to designate the work as carried on in the public schools, and it will therefore be used for that purpose in this paper.

Limitations of Manual Training.

Manual Training should not attempt to teach the trades, as that should be left to the vocational high schools, the older trade schools, or such colleges as possess the necessarily expensive equipment. As a rule neither time nor funds are available for trade teaching in the high schools, nor is such work well adapted to coordinate with the ordinary high school courses. If there is a demand for trade teaching, provide for it separately with an adequate equipment and ample teaching force in a vocational school.

Manual Training should insist upon a practically perfect piece of work at all times. It should cultivate skill with the hand and habits of intelligent criticism of that which is pleasing in outline and beautiful in finish. It should train the eye to quickly recognize the skillful production of the craftsman, and it should provide an opportunity for acquiring a correct knowledge of what is technical in the work being done. Drawing, the universal technical language, should certainly be included in any well arranged course of manual training.

Applying the preceding general remarks to the conditions in the Florida High Schools, we may assume that there will be little money available for tools, equipment, and materials at the start. Also that the requisite teaching skill is imperfectly developed. This latter is perhaps the most serious handicap, but fortunately the one most easily overcome.

It is not considered practicable to lay out a full course of instruction and equipment for a course of manual training that will fit any or all high schools of the State, but we may set up a proposed course to fit the present conditions and later on improve it as time and opportunity affords. Each

school is expected to modify it, or attempt only that part which best suits its local conditions. Under no circumstances is it wise to attempt too much, unless one has had considerable experience, and even then it is best to get the wood working well started before undertaking the forge or foundry work.

ROOMS.

Never place power machinery in, under, near, or adjacent to any other school room to be used at the same time, as the noise and vibrations become a nuisance of considerable magnitude to others. Any well lighted, well ventilated, and dry room will answer for manual training instruction. Whenever possible it is very desirable to have an adjoining room provided with seats and arm rests, or desks for the instructor to demonstrate before the class how to do any particular piece of work. This is especially important when the class is first taking up the work. The students should be encouraged and to a certain extent required, to make notes and sketches of the work during an instructor's demonstration. This demonstration room may also be usefully employed as a drawing room when the drawing is taught by the same manual training instructor.

DRAWING.

Two methods of instruction in drawing are open for adoption; one is to have each student make accurate mechanical drawings with pencil in a strong manilla paper book, six by nine inches in size; which drawings he will use in the shop as his own working drawings for constructing the piece to be made. The other method consists of having a separate, or independent course in drawing not connected with the shop drawings at all. In this case the student would have to be furnished with blue prints of the work to be done in the shop.

For manual training in the high schools I would advise the method of each student making his own drawings from some existing model. This drawing course might be added to with profit by requiring some special work in ink, not necessarily connected with the work being done in the

shops. There should also be a certain amount of free hand drawing done by each student, chiefly relating to industrial subjects. The detailed course of instruction in drawing can be arranged from the courses of practical shop work; and by the selection of some good examples from any reliable reference book on mechanical and free hand drawing. The ordinary textbook for geometry also offers many excellent examples, which are exceedingly helpful to the student in his mathematical work.

PASSING PIECE.

No student should be permitted to finish any course of practical work without making a passing piece, thus demonstrating what he has learned and his ability to undertake and accomplish things. Most boys will undertake the passing piece with great pleasure and make a success of it, if properly guided by wise council in its selection and execution. The passing piece should be entirely the product of the boy's own labor, and as much as possible his own design also, so that he can truthfully claim it as his own work when it is placed upon exhibition for public inspection at the close of the course. A neat plate of polished brass bearing the maker's name is easily made by etching, and should be attached to each piece.

COURSES OF INSTRUCTION.

WOOD WORKING.

CARPENTRY AND JOINERY.

ROOMS:—As specified above.

DRAWINGS:—As specified above.

MATERIAL:—Soft cypress is much more satisfactory than yellow pine and should be used for the general exercises. Cedar for special work, and well seasoned oak, or hickory for passing pieces.

EQUIPMENT—The writer would like to specify by items, in full detail, precisely what, in his judgment, constitutes a satisfactory equipment, and also its cost; but such an undertaking, though very desirable, is too extensive a task at the present time. It is expected

that such information will be available for use in connection with the course on manual training to be given by the writer in the forthcoming Teachers' College at this University.

Briefly then there should be:

MACHINE TOOLS.

1 gas engine, or electric motor for power.
1 cross cut and rip sawing bench.
1 small jointer.
1 fox trimmer.
1 band saw.
1 grind stone.
1 emery wheel.

Estimated cost $1000.00

SMALL TOOLS.

One complete set of instructors' tools.
One lot of general tools for the tool case.

For students' use, and preferably one set to each boy:

1 cabinet maker's tail screw bench.
1 small hand saw.
1 small rip saw.
1 back saw.
1 claw hammer.
1 fore plane.
1 jack plane.
1 smoothing plane.
1 marking gauge.
1 try square.
1 bevel square.
1 2-foot rule.
1 ¾-inch socket firmer chisel.
1 ⅜-inch socket firmer chisel.
1 ¼-inch socket firmer chisel.

Estimated cost ..... $ 30.00
If ten sets 300.00

Allowing for incidentals, say $1500.00 for the above equipment, which it is believed is beyond the ability of the average high school to obtain at the start.

Ten lathes for wood turning would bring the total up to between $2500.00 and $3000.00, which would provide a very fair equipment for wood working for thirty or forty boys if divided into sections of ten to a class.

A much cheaper and better equipment for starting in a small way would consist of:

10 sets of small benches and small tools as specified above.
1 bicycle grind stone.
1 oil stone.
1 set of instructors' tools.
1 set of general tools.
Estimated cost about.....$500.00

This figure might possibly be reduced by omitting some of the above, but with less than $300.00 it seems inadvisable to undertake carpentry work.

Relative to the work to be done the writer has made and accumulated a large number of desirable examples and drawings, selections from which will soon be available for use in the Teachers' College. In the interval and for immediate use, a very good textbook is "Bench Work in Wood," by Professor W. F. M. Goss, and published by Ginn & Co. It has a number of technical defects and should therefore be used with some degree of caution, but in the main it is very satisfactory.

Any other textbook that may be suggested, the writer will be pleased to examine and advise in regard to if supplied with a copy.

Keep all tools sharp—is the secret of success in this and all work involving the use of tools.

METAL WORKING.

The only metal work that can be profitably undertaken in the average high school is forging and perhaps elementary foundry work.

FORGING.

A small equipment would consist of:

1 hand forge, not too small, with poker and shovel.
1 lot of various sized iron.

1 lot of steel for tools.
¼ ton of forge coal.
2 pigs of lead.
10 pounds of prussiate of potash, for case hardening.
Estimated cost about.....$80.00

Also for each boy as many sets of tools as may be necessary for the work and consisting of:—

1 steel faced, or Peter Wright anvil.
1 hand hammer.
1 set of tongs, different sizes and shapes.
1 tong chain—link.

In addition to the above there should be provided one or two full sets of the following tools for general use:—

1 each, top and bottom fullers, in various sizes.
1 " " " " swages " " "
1 " punches and dies, in various sizes.
1 flatter.
1 set hammar.

The work to be done consists of practice in the use of the above tools, in correct heating of the iron, in welding, case hardening iron, and in hardening and tempering steel. Usually this is accomplished by each student following a prescribed course of well arranged exercises; so designed as to bring out the important points of the work. Such courses are not generally available and are usually gotten up by the expert instructor from different sources.

A rather cumbersome four volumed, but reasonably excellent work on forging is published by M. T. Richardson Co., care of "The Blacksmith and Wheelwright" of New York. Its title is "Practical Blacksmithing" and it is chiefly useful to the instructor.

A most important part of the course of instruction is to have the students work on bars of lead, forging out most, if not all, of the exercises in this metal first; and then trying the iron. Whilst this is being done, two of the other students can be running the forge fire on iron and steel. The lead bars are easily made from the pig lead by melting and casting in a dry mould.

If it is found practicable with such a small equipment, require each student to make a passing piece in this work also. Hand irons, fancy shovels for the fire place, lamp stands, carving sets, and similar articles of utility are usually very popular with the student.

FOUNDRY.

In this interesting and instructive work, much can be accomplished with practically little equipment and at a cost within the reach of anyone. To carry out the work as suggested, it is very important for the instructor to possess ability, skill, and knowledge of the moulders' and founders' art. For patterns, the skillful instructor may obtain at the hardware store a number of articles which will do splendidly for examples in moulding. Also some of the more able students can be allowed to make wood patterns in the carpenter shop, and if a foundry is near a few others can be secured, for practically nothing, from their accumulation of superseded ones. With regard to the satisfactory and successful use of patterns it is of the first importance that they be finished perfectly smooth and that they have the proper draft for easy withdrawal from the sand.

For flasks, the student can obtain some strong starch boxes, the corners of which can be strengthened with a piece of three cornered stick. Cut these boxes into two or three parts, as desired. Screw easy working guide-pins, of hard wood, on each side for lifting guides and, if not used too roughly, these flasks will answer for about a year's work.

Sand, and one good set of moulders' tools, with perhaps a small snap flask, should be obtained from some foundry supply house, recommended by your local foundry, or write The S. Obermyer Co. of Cincinnati, O., for a catalog and prices.

Reference books are:—"Metallic Alloys," by W. T. Brannt, and "Overman's Moulder & Founder." Both books are published by H. C. Baird & Co. of Philadelphia, Pa.

A small hand forge can be used for melting bronze, but it is not good practice to do this if the forge is also used for iron work, as welding troubles are sure to result.

General Suggestions.

In Manual Training the chief thing to attain is to inculcate in the student a love for the perfect piece of work; perfect in construction, perfect in workmanship, beautiful in design, and especially in finish.

To do this successfully one must possess this feeling oneself, must be enthusiastic and quick to perceive the accomplishment of the difficult. Mere enthusiasm alone, however, will not suffice, but that which is born of personal experience and skill is what is really necessary. Therefore the instructor should have acquired the ability and skill to do things, and show himself a leader.

Fortunately the normal boy is not hard to lead, due to the fact that he is anxious to try man's work and thereby measure his own ability and worth. As a consequence of this desire the boy generally wants to pass over the necessary preliminary drill and ambitiously undertake more than he is prepared for; herein lies the chief difficulty for the instructor. Tact, common sense, and a certain degree of firmness are the remedies.

As a rule a boy should be encouraged, and if necessary required, to do each piece of work as nearly perfect as possible, but when he does hand in an imperfect piece, point out the defects and request him to do it over again. Usually the desired result will be secured.

Never make the mistake of keeping a boy upon any piece of work until he does it perfectly, by repeatedly doing it over, as the sure result will be a discouraged and disgusted boy. It should be kept in mind that all boys are not born mechanics.

In rare cases of this kind it is best to provisionally accept the work with the understanding that he is to try it over again towards the close of the term. Usually the result will be both gratifying and surprising to the instructor who tries this method for the first time.

One of the best devices to encourage the very highest degree of care and attention on the part of the student is to keep upon exhibition the best pieces made by the students,

so that it becomes an honor to get a piece placed in the exhibition case.

Have a standard and set it high!

Every piece of work should have the time required to do it carefully recorded; for two reasons: First to teach the value of quickness as considered in the commercial world; and second to enable the instructor to accurately determine the reasonable rate of working for his class. The average time thus determined for each piece should be the required pace for the class.

In conclusion permit me to urge upon everyone connected with this kind of educational work, the great importance of dignifying intelligent and skillful labor. To labor within reason is a privilege as well as a pleasure. Without labor consider what would become of our civilization!

MATHEMATICS.

By H. G. Keppel, Ph. D.,
Professor of Mathematics and Astronomy,
The University of Florida.

An effort is made in this paper to say a few things that may be suggestive and of help to those who are teaching mathematics in the high schools of Florida. The bibliography at the end will be found useful for those who wish to study the subject.

I.

The Purpose and Value of the Study of Mathematics.

The teacher should know not merely WHAT to teach, and HOW to teach, but he should know WHY he teaches. Mathematics has always formed a large part of the course of study in our schools and the teacher should know why so much importance is given to it.

Mathematics has a practical value—it deals with facts, many of which relate directly to the world about us. Professor Safford says that in his opinion "mathematics is the abstract form of the natural sciences; and that it is valuable as a training of the reasoning powers, not because it is abstract, but because it is a representation of actual things." Professor Felix Klein of Gottingen says "A very important end of the study of mathematics is to foster the conviction that correct thought on the basis of correct premises gives mastery of the external world." Froebel says "Mathematics stands forth as that which unites, mediates between Man and Nature, inner and outer world, thought and perception, as no other subject does."

But however important and valuable the facts of mathematics may be, a stronger justification for its study lies in the fact that the subject of mathematics exemplifies most

clearly and simply certain modes of thought which are of the greatest importance to every one. It gives ability in grasping a situation and in drawing correct conclusions. "Mathematics is the science of necessary conclusions," as Peirce has said. The healthy mind reasons naturally and the healthy child enjoys the clear and accurate and simple logic of mathematics. "To ask whether a child has an aptitude for mathematics is equivalent to asking whether he has an aptitude for reading and writing," says the French mathematician Laisant. Mathematics is to be understood, the REASONS are the important part, and very little memorizing should be allowed. The object of the study is then not to get a large bulk of mathematical facts or formulas.

For a pupil to carry forward a demonstration while standing on his feet and under a fire of questions from the teacher and the class is a most valuable acquisition. Mathematics cultivates a reverence for truth. A German mathematician has recently said, "As pure truth is the polar star of our science, so it is the great advantage of our science over others that it awakens more easily the love of truth in our pupils. If Hegel justly says, 'Whoever does not know the works of the ancients, has lived without BEAUTY,' Schellbach responds with equal right, 'Who does not know mathematics, and the results of recent scientific investigation, dies without knowing TRUTH.'" Again it may be said that mathematics, with its symmetry and orderliness, its simplicity and completeness, cultivates the esthetic side. The following from the address of the great French mathematician Poincare before the International Mathematical Congress at Zurich, 1897, is suggestive: "No doubt you have often been asked what mathematics is good for, and if those delicate constructions which we draw wholly from our mind are not artificial and children of our caprice. Among the persons who put this question I must make a distinction. Practical people ask of us only instrumentalities for making money. They do not deserve an answer; they should rather be asked what is the good of accumulating so much wealth, if, to have time for gaining it, they must neglect art and science, which alone give us souls capable of enjoying wealth.

Mathematics has a triple end. It is to furnish an instrument for the study of nature. But that is not all. It has a philosophic end, and, I dare say it, an esthetic end. . . . . Those skilled in mathematics find in it pleasures akin to those which painting and music give. They admire the delicate harmony of numbers and forms; they marvel when a new discovery opens an unexpected perspective; and is this pleasure not esthetic, even though the senses have no part in it?"

The teacher should consult Chapter II, pp. 9-52 of Young's "The Teaching of Mathematics in the Elementary and the Secondary School," for much valuable and interesting matter on this subject.

II.

The Preparation for High School Mathematics.

The pupil should come to the high school from the eighth grade with a fairly good knowledge of the fundamental operations of arithmetic as applied to integers and fractions, a good knowledge of the factors of the first one hundred and fifty or two hundred integers, together with a notion of the highest common factor and lowest common multiple in cases where the numbers concerned are easily factored; a beginning should have been made in ratio and proportion and the rule for the extraction of square root of perfect squares should be known.

It seems desirable that already in the grades the pupil become acquainted with some simple geometry. For a number of years the best teachers have been advocating the introduction of such work. The Committee of Ten of the National Educational Association in 1893 urged it strongly. The French boy begins the study of geometry in an elementary way even earlier than he begins the study of algebra. In the German schools plane geometry is studied along with decimal fractions and the theory of proportion in arithmetic. "Inventional Geometry" is now taught in the grammar schools of the City of New York. Several good books for class use are now on the market. Among these may be mentioned:

Hanus, "Geometry in the Grammar Schools," p. 52, Ginn & Co., Boston.

Failor, "Inventional Geometry," p. 83, The Century Company, New York.

Wentworth and Hill, "First Steps in Geometry," p. 156, Ginn & Co.

Hall and Stevens, "Lessons in Experimental and Practical Geometry," p. 94, The Macmillan Co., New York.

Of late nearly all teachers of mathematics agree that the teaching of algebra be more closely connected with arithmetic. To make the transition from arithmetic to algebra more simple and more natural it is suggested that the literal notation be introduced not later than the seventh grade and that it be used quite freely in the eighth grade. It is not urged that extra time be taken for this geometry or for this algebra, but that these be incorporated in the arithmetic. Some of the recent textbook writers have already gone in this direction.

III.

The High School Mathematics.

The mathematics in the High Schools of the first class in Florida is often distributed as follows:

First Year. Algebra to Quadratics.
*Second Year. Algebra, completed.
*Third Year. Plane Geometry.
Fourth Year. Plane Trigonometry.

The school year is at least eight months long, the recitation periods are 45 minutes in length, five recitations are held in each subject during each week, and the pupils are supposed to take not more than four subjects each day.

Two years seem to be necessary for the algebra. With a fair preparation on entering the high school these two years should give the student a very good knowledge of elementary algebra.

*In very many High Schools the Plane Geometry is now placed in the second year and the Algebra is completed in the third or fourth year.

The one year for plane geometry seems rather short. The value of geometry as a high school study is everywhere admitted, and the general tendency today seems to be to give more time to this subject. No part of mathematics yields results more valuable or more universally used than does geometry. Even in high schools where the school year is longer than eight months it is conceded that one year for plane geometry is none too long. The National Committee of Fifteen on Geometry Syllabus, acting jointly for the National Educational Association and the American Federation of Teachers of Mathematics, reports (June, 1911): "This committee recommends that plane geometry be assigned not less than one year or more than one and one-half years in the curriculum, being preceded by at least one year of algebra, except where the individual teacher desires to carry it along with algebra." Would it not be possible to take one or two hours through the year from the trigonometry in the fourth year and use this time for continuing the plane geometry?

Many of the best high schools are today taking up the plane geometry in the second year and then finishing the algebra in the third year. This plan seems to have much in its favor and several of the best schools in Florida are already following it. The adjustment can be very easily made and it seems to be especially desirable.

IV.

The First Year in Algebra.

It is quite desirable that in the eighth grade the study of arithmetic shall lead to some of the simpler notions of algebra and it may be well occasionally during this first year course in algebra to emphasize the connection between the two subjects. It is necessary to go slowly and to use very simple illustrations, and these will have to be frequently repeated.

During this year an ordinary class should be able to do in a reasonably thorough fashion the following topics:

(1) A thorough knowledge of the four fundamental

operations as applied to the simpler algebraic expressions together with the use of parentheses.

(2) The solution of simple equations with one unknown.

(3) The solution of simple equations with two and three unknowns.

(4) The products of polynomials.

(5) Division by a polynomial, simple cases.

(6) The factoring of quadratic expressions, and of polynomials coming under one of the forms x^2-y^2, x^3+y^3, x^3-y^3.

(7) Common divisors and common multiples.

(8) Fractional expressions and their combination by means of the four fundamental operations.

(9) Graphical representation of functions of the form $ax+b$, assuming that the graph is a straight line.

(10) The theory of positive integral exponents with exercises in fractional, negative and zero exponents WITHOUT the theory.

(11) Simple radical expressions and approximate square roots.

(12) Algebraic inequalities.

(13) The solution of numerical quadratic equations with one unknown.

To do all this work thoroughly in one year will make a busy program. If it is too crowded the two last named topics could possibly be postponed to the next year. The topics of course need not at all follow the order above given; the text used may suggest the best order or the teacher may have an order which he prefers.

The teacher will find many valuable suggestions for the teaching of algebra in Young's "The Teaching of Mathematics" and in Smith's "The Teaching of Elementary Mathematics." A book like Fine's "College Algebra" will repay study. While it is important that the teacher should know the critical work that has been done upon the foundations of mathematics, it hardly seems possible to bring this into the teaching of high school mathematics. Good pedagogy requires that the beginning of algebra be made as simple as possible. Most teachers and most textbooks attempt to

prove too much. It is better to ASSUME or make a NEW DEFINITION. When once the teacher realizes that negative numbers are NEW numbers, the result of definition, and that sums and products of such numbers must be DEFINED, the matter will be greatly simplified. Cf. Fine's College Algebra, pp. 19-20.

Graphical representation is used in so many different connections that every student ought at least to be taught the elements of the subject. The picture puts life and vividness into the algebra, and the notion of the graph of $ax+b$ can be brought in early. The graphical method can well be used in illustrating the solutions of equations of the first degree in x and y. Squared paper should be used and a section of ruled blackboard is a valuable aid.

Factoring and the theory of exponents are both very important and the drill work on these should be very thorough.

V.

The Second Year in Algebra.

The topics that should be attempted during this year are:

(1) A rapid review of the preceding year's work with special emphasis on factoring and the theory of exponents.

(2) A thorough study of numerical and literal quadratic equations. The theory should also be taken up.

(3) Quadratic equations with two unknowns.

(4) Ratio, Proportion, and Variation.

(5) Arithmetical, and Geometrical Progression.

(6) Imaginary Quantities.

(7) The Binomial Theorem with positive integral exponent.

(8) Logarithms.

In connection with the study of quadratic equations the graphical method will again be found of great help, and the whole subject of simultaneous equations will become clearer if the graphs of the several equations are drawn. Ratio and proportion have already received some attention in arithmetic; they may now be studied with some more completeness. The progressions have considerable practical value and they

give a good opportunity to review simultaneous equations. The solution of so simple an equation as $x^2+1=0$ brings in a new kind of number; namely, one whose square is negative. As these numbers frequently occur in the solution of quadratic equations the pupils should know how to deal with them. This study of the imaginary number may offer the teacher a splendid opportunity of showing how the different operations have made necessary the extension of our number system, and how the number system has gradually developed, beginning with integers, then fractions, negative numbers, irrationals, and finally coming to the complex numbers. This general subject is splendidly treated in Fine's College Algebra, pp. 1-70.

VI.

Plane Geometry.

Geometry and its clear simple logic should be a special delight to the pupil; the natural mind reasons logically and takes special delight in it. Much attention has been given of late years to reforming the teaching of geometry and it will repay the teacher to have some acquaintance with this literature. The tendency just now is to make the subject less formal than it used to be. By the use of simple illustrations attempts are made to base the elementary concepts more completely upon the experiences of the pupils. Many numerical and applied problems and practical exercises in geometrical construction are used to give the subject more meaning. While before there was a tendency to extreme formalism now there is danger that the pendulum may swing too far in the other direction. There seems to be a happy mean between extreme formalism and extreme utilitarianism which the teacher of geometry had better follow. There should be a certain concreteness in the teaching, as this has a value of itself and it also makes the subject more attractive, but the logical side of the subject should not be neglected.

Most teachers are today quite well agreed that at the beginning of the study very few formal definitions are neces-

sary and that not so much emphasis need be placed on the axioms. The experience of the pupil furnishes the best basis on which to build. Certain concepts in geometry are so elementary that no simpler terms exist by which to define them. For example, such terms as POINT, LINE, SURFACE, SPACE, ANGLE, STRAIGHT LINE, CURVE, etc., already mean something to the pupil when the study of geometry is begun, and it is perhaps better that teachers give the pupils a clear concept of these terms and not be too exacting in requiring definitions.

The ordinary texts of geometry are very much alike and it will not be necessary to outline the topics here. Every teacher of geometry will find many valuable suggestions in the "Provisional Report of the National Committee of Fifteen on Geometry Syllabus." It can be secured gratis upon application to the Commissioner of Education, Department of the Interior, Washington, D. C.

VII.

Plane Trigonometry.

Trigonometry is admirably adapted to the third or fourth year of the high school course. It has many applications that interest the pupil and it gives a good review of algebra and geometry. Neatness and accuracy and orderliness should be insisted upon in the computations. The textbooks in trigonometry are all very much alike. A good course in trigonometry should cover the following subjects:

(1) A thorough drill in definitions of the trigonometric functions using the ratio and not the line definitions. The definitions should be so framed as to admit of easy extensions to angles greater than 90 degrees.

(2) A careful study of the relations that exist between the functions of an angle.

(3) The determination of the numerical values of the functions of 0°, 30°, 45°, 60°, 90°. The functions of 120°, 135°, 150°, 180°, 225°, etc., might be included.

(4) The solution of right triangles with many interesting and useful applications.

(5) The generalization of the functions to angles of any magnitude, positive or negative.

(6) The study of the Addition Theorem and all the formulas that follow directly from it.

(7) The formulas used in the solution of oblique triangles.

(8) The use of trigonometric and logarithmic tables in solving right and oblique triangles.

(9) A brief treatment of inverse trigonometric functions.

Above includes practically all that is important in the trigonometry. It may be well for the student to be drilled in a number of trigonometric identities, as in no other way can the fundamental formulas be so thoroughly learned. It may also be well to solve some trigonometric equations. Four place tables will answer all requirements.

VIII.

General Suggestions.

It is well to begin a recitation by reviewing the previous day's work. This may be done clearly and simply in a much condensed form by the teacher himself, or he may in a series of short direct questions let the class develop the important points, or he may ask the whole class to write on paper in ten minutes the answers to one or two questions which are closely related to the work of the preceding day. These "written quizzes" are very effective, and frequently the teacher can look over all the papers, return them, and explain the problems when still fresh in the minds of the pupils. Frequently a teacher may get good results by sending the whole class to the board and directing their work from the center of the room; often it is perhaps better to have them all do written work on paper and for the teacher to inspect the work by passing quietly from desk to desk.

The teacher will do well to bring interesting applications of mathematical facts to the attention of the class. The history of the subject is interesting and should not be neglected. Again there are many interesting and curious facts about

numbers or about geometry or about chess or other subjects that will arouse the interest of the class. The teacher will find much material of this kind in Ball's "Mathematical Recreations and Problems."

In the mathematical classroom there should be some apparatus. There should be at least thirty-five linear feet of blackboard in the room. One section near the teacher's desk should be ruled in squares so as to be suitable for drawing graphs. A box of colored crayon should be on hand. Frequently attention can be directed to the important parts of a problem by using colored crayon. In geometry the given lines, the auxiliary lines, the conclusion, etc., may be impressed more strongly on the mind in this way. Then there should be rubber tipped pointers, straight edges, yard sticks, meter sticks, protractors, geometrical solids and various models, crayon compasses, squared paper, some cardboard, a pair of scissors, a slated sphere, etc. A slide rule may help to give a better idea of logarithms.

IX.

Bibliography.

The following list contains the names of a number of mathematical books which are especially suitable for high school classes and libraries or for the private libraries of teachers of secondary mathematics. A few of the books that seem to be especially desirable have been marked with an asterisk.

Textbooks.

Young & Jackson, Elementary Algebra, 1908, Appleton.

Wells, Algebra for Secondary Schools, 1906, Heath.

Schultze, Elements of Algebra, 1910, Macmillan.

Hawkes, Luby & Touton, First and Second Course in Algebra, 1910, Ginn.

Milne, Standard Algebra, 1908, American Book Co.

Slaught & Lennes, First Principles of Algebra (1912), Allyn & Bacon.

Wentworth & Smith, Plane Geometry, 1910, Ginn.

Schultze and Sevenoak, Plane Geometry, 1907, Macmillan.

Wells, New Plane Geometry, 1908, Heath.

Milne, Plane Geometry, American Book Co.

Wenthworth, Plane Trigonometry, Latest Revised Edition, Ginn.

Conant, Plane Trigonometry, 1910, American Book Co.

Wells, Plane Trigonometry, Heath.

Phillips and Strong, Plane Trigonometry, American Book Co.

Algebra, Geometry, Trigonometry, Etc.

Chrystal, Algebra, 2 vol., 1893, Macmillan, $7.25.

*Fine, College Algebra, 1905, Ginn, $1.50.

*Fine, The Number System of Algebra, Heath, 1891, $1.00.

Schultze, Graphic Algebra, Macmillan, 1908, $0.80.

Casey, The First Six Books of Euclid, Longmans, $1.40.

*Failor, Inventional Geometry, Century Co., 1904, $0.60.

Hadamard, Lecons de Geometrie Elementaire, Gauthier-Villars, Paris, 16 Fr.

Klein, Famous Problems in Elementary Geometry, Ginn, 1897, $0.80.

Myers, Geometrical Exercises for Algebraic Solution, University of Chicago Press, 1907, $0.80.

Row, Geometric Exercises in Paper Folding, Open Court Pub. Co., $1.00.

*Warren, Experimental and Theoretical Course in Geometry, Clarendon Press, 1903, 2 sh.

Loney, Plane Trigonometry, Cambridge University Press, 1893, 7 sh. 6 d.

Hanus, Determinants, Ginn, 1886, $1.80.

Burnside & Panton, Theory of Equations, 2 vol., Longmans, $6.00.

The Teaching of Mathematics.

Loomis, Original Investigations, or How to Attack an Exercise in Geometry, Ginn, 1901, $0.35.

Mathematical Monographs, by various authors, Heath, 10 cts. each.

Perry, British Association Discussion on the Teaching of Mathematics, Macmillan, 1902, $0.70.

*Smith, The Teaching of Elementary Mathematics, Macmillan, 1907, $1.00.

*Smith, Teaching of Geometry, Ginn, 1911.

*Young, The Teaching of Mathematics in the Elementary and in the Secondary School, Longmans, 1907, $1.50.

*Young, Mathematical Monographs, Longmans, 1911.

History, Philosophy, Recreations, Etc.

*Ball, History of Mathematics, Macmillan, $3.25.

Ball, Primer of History of Mathematics, Macmillan, $0.65.

Cajori, History of Elementary Mathematics, with Hints on the Teaching of Mathematics, Macmillan, 1906, $1.50.

Fink, History of Mathematics, Open Court Pub. Co., $1.50.

Clifford, Common Sense of the Exact Sciences, Appleton, 1888, $1.50.

Dedekind, Essays on the Theory of Numbers, Open Court Pub. Co., 1901, $0.75.

Hilbert, Foundations of Geometry, Open Court Pub. Co., 1902, $1.00.

Poincare, Science and Hypothesis, Scribner, 1907, $1.50.

Russell, Foundations of Geometry, Cambridge Press, $2.00.

*Whitehead, An Introduction to Mathematics, Holt, $0.50.

Abbott, Flatland, Little, Brown, $0.60.

*Ball, Mathematical Recreations, Macmillan, $2.25.

Manning, Fourth Dimension Simply Explained, Munn & Co., $1.50.

Schubert, Mathematical Recreations, Open Court Pub. Co., $0.75.

Teachers of Mathematics will find much that is valuable and interesting in *School Science and Mathematics*, a monthly journal published in Chicago. The Reports of the American Delegates of the International Commission on the Teaching of Mathematics are now being published by the Bureau of Education at Washington. These reports contain a study of mathematical teaching in the various years of the public school and in the higher institutions of learning, and will be found of value.

MODERN LANGUAGES.

By C. L. Crow, Ph.D.,
Professor of Modern Languages,
The University of Florida.

The Modern Language Department recommends that from the very first the pupil should be impressed with the necessity of acquiring a fair pronunciation of the language he is studying. More and more attention to this is being paid in our best schools. Indeed when one of the modern languages is offered for admission, several of the largest colleges and universities of the country lay as much stress upon the candidate having a fair pronunciation of the language offered as upon his having acquired a knowledge of the forms or the ability to translate. It must be remembered that these languages are living, and that, as far as conversational use is concerned, knowledge of forms and construction, together with a fairly large vocabulary, are of little avail, if the pronunciation is unintelligible.

In the few cases where the teacher is not certain of his own pronunciation, the language should be taught visually rather than by oral methods. Even in this way it is possible to teach forms, constructions, translation, and something of the literary beauties of the language. Better no practice in pronunciation than faulty practice.

In most cases, however, the teacher should make every effort to teach pronunciation. For this the greatest care and patience are necessary. The student should at first not be permitted to pronounce, until the new word or sound has been uttered distinctly several times in his hearing. The texts studied in class should be read aloud by the teacher before the pupil is called upon to read. As, in the majority of cases, pronunciation is merely imitation of what one has heard, the pupil should be made to hear as much as possible of the language studied. Where the teacher is acquainted with the subject of phonetics, or, in other words, whenever

it is possible, it is well to show the pupil how the sounds are made, so that the boy may not have to rely upon the ear alone, for the sense of hearing is often defective. In some cases good results have, because of the possibility of endless repetition, been secured by use of specially prepared records on a phonograph.

The department stresses the importance of pronunciation in this bulletin because so many of its new students have no real knowledge of the sounds of the language they offer. As a last word on the subject, do not let the slightest slip on the part of the pupil go unnoticed. In particular seek to prevent the beginner from pronouncing the foreign words carelessly, when he is using these words out of the hearing of the teacher.

Children learn paradigms much more readily than older persons. The more or less parrotlike repetition of noun or verb forms is to many a child somewhat of a pleasing occupation, whereas it is intensely wearying to the adult. It is easier for the high school teacher to teach forms than it is for the college professor. And the importance of an accurate knowledge of forms cannot be denied. All the regular and a few of the commoner forms should become as familiar to the pupil as is his multiplication table. After the forms are once learned, it is a good idea to turn back to them from time to time in order to refresh the pupil's memory. This study of forms is admittedly uninteresting to many; yet it is as necessary as it is dull.

Many schools err, it is believed by the writer, in selecting texts too difficult for the pupil to read. Wilhelm Tell, to give but one example, is often read when the pupil, at his stage of progress, would be better employed in reading some easy tale. A large vocabulary and ease in reading is secured by many, thru pages of the simplest literature, rather than by laborious toiling over a few pages of some difficult "classic." Many a boy loses all enjoyment of a masterpiece because of the hard work in translating it. Often he forgets the earlier parts of the plot before he has finished the play. Let the reading be carefully graded, and pass by slow stages from the easy to the more difficult, but

read page upon page. It will be found that by so doing the pupil will acquire a larger vocabulary and will furthermore take greater pleasure in his work. Fortunately in any one of the modern languages generally studied there is a wealth of material from which to choose. With the help of the recommendations made by the committee from the Modern Language Association appointed for this purpose and of the well-graded lists of available books prepared by our best publishers, the selection of a good reading course is not a difficult task.

The committing to memory of some of the most popular shorter poems in the language studied is recommended by almost all teachers. Some colleges require a given number to be known by a candidate offering a modern language for admission. The good to be derived from this memorizing is obvious.

Perhaps the best test of a pupil's real knowledge of a form or of a rule of syntax is his ability to make use of it. Consequently the pupil should be drilled and drilled again in writing or giving orally simple sentences in the language studied. Great care is needed, however, to avoid the absurd sentences given for practice in some of our earlier books and not altogether unknown today. Many teachers have found it a good plan to have the pupil give an outline in the language studied of simple stories read in class. Where the teacher can~~not~~ conduct such an exercise profitably, this is strongly recommended.

Dictation exercises often prove a good exercise. Of course in order to get the best results the teacher must be extremely careful, while reading aloud, with his own pronunciation.

Whenever translations into English are required the teacher should insist upon good and idiomatic English. Good translations are exceedingly difficult to make (witness the very few in existence), but this should not prevent the insistence upon good English. Many schools err greatly in not insisting upon accuracy and clearness in translation; some permit, and even encourage, renderings that are in neither English nor the language studied. A translation

should follow the original as nearly as possible, but it should at all hazards be couched in English. The use of the verb "to English" instead of "to translate" should perhaps be encouraged.

As much use in class of the foreign language as is possible is to be recommended. The teacher should at the very least make the pupil feel that he is studying, not a dead, but a living language. Anything available that will accentuate this, views, music, etc., should be employed.

And the department as a closing word insists upon accuracy—accuracy in pronunciation, in knowledge of forms, in the use of English (whenever English is used), and in the use of foreign language.

PHYSICS.

By J. R. Benton, Ph.D.,
Dean of the College of Engineering and Professor of Physics,
The University of Florida.

The inclusion of the subject of physics in the high school curriculum is justified both by its cultural and its utilitarian value. From the cultural point of view, it offers mental discipline of several kinds, especially in reasoning from observed facts; it stimulates accuracy and ingenuity; and it conveys information about many things of interest and importance in nature and in human activities. From the utilitarian point of view, it teaches many facts and principles which can be usefully applied in every-day life, or which are important in the study of other sciences. The cultural and the utilitarian points of view, in the opinion of the writer, are not antagonistic, and the best teaching of physics should give proper weight to each, and not neglect either; the best results from the utilitarian point of view are obtained by securing a broad general knowledge of the subject rather than by confining attention narrowly to those things which seem to be immediately useful; while from the cultural point of view, the subject is likely to be more genuinely and effectively mastered if the practical side receives due prominence, and it is emphasized that the principles are real and can be made to work, rather than mere academic abstractions. From both points of view, it is the task of the teacher to give to the pupils as complete and real a mastery of the subject as is possible with the time and facilities available.

General Attitude Towards the Subject.

A great many pupils appear to regard everything they learn in school as artificial and academic and having no connection with the realities of nature and affairs of every-

day life. Such an attitude is quite ruinous to obtaining a mastery of physics, which is very decidedly a science of actual facts. Such an attitude destroys the conception of the real value of education. It is at the bottom of the popular contempt for so-called "book learning," and the lack of appreciation of the value of exact knowledge and of the utility of scholars to the communities which are willing to make use of them. It is difficult for a teacher to overcome this attitude. Nevertheless, everything possible should be done to correct it, not only from the point of view of learning physics, but also from that of the general cause of education and learning. The difficulty probably arises largely from the fact that it is necessary to use textbooks. The pupil regards the textbook as an authority which must be followed (in school), whether or not he understands or believes the statements contained in it; instead of this he ought to base his beliefs (as he always does when outside of the school) on what he can observe and test for himself. Now it is not feasible to do away with textbooks in school instruction; they have to be used in order that the subjects may be covered in a systematic way. Nevertheless, the teaching should be done as little as possible by AUTHORITY (of textbook or teacher), and as much as possible by stimulating the pupil to think and observe for himself.

Methods of Instruction.

Instruction may be given by (1) assigned lessons in a textbook, (2) demonstration experiments performed by the teacher before the class, and (3) individual laboratory work on the part of the pupils.

Textbook Work.

At least 120 periods of not less than 45 minutes each should be given to work based on lessons assigned in a standard textbook. The aim should be towards thoro mastery of fundamental principles, rather than towards covering a large quantity of matter in the textbook. In the opinion of the writer, most textbooks of physics are too full, and most courses of physics cover too much ground to secure proper

thoroness in the study of fundamental principles. A lesson assigned in a physics textbook ought not to cover much more matter in the book than a lesson assigned in a mathematics textbook; and the matter ought to be just as fully elaborated in class, by discussion, illustrative examples, problems, and experiments. To make the lessons short enough to do this, it may be necessary to skip portions of the textbook, and the teacher should feel free to do this as far as possible without omitting fundamental principles.

The most important part of the subject is mechanics, since the other parts depend upon it; it is desirable, therefore, to give especial attention to thoro grounding in mechanics, even at the expense of fulness in other parts of the subject.

The use of illustrative problems is likely to be particularly effective in making clear to pupils the bearing of the principles studied. It is desirable to have numerous problems on each principle worked out by the pupils in class; such problems had better not be difficult; if they are thoroly illustrative, then the easier they are, the better; it is well to have them bear upon every-day affairs as far as possible.

The following list of topics is given, as representing what is considered essential to the course in physics:

METRIC SYSTEM.

Definitions of the meter and the kilogram; meaning of prefixes milli-, centi- and kilo-; derived units for area, volume, velocity, density, etc.

Inertia, mass; distinction between mass and weight.

States of matter; solids, liquids, gases.

Elasticity, Hook's law.

Rectilinear motion; velocity, acceleration, uniformly accelerated motion.

Newton's law of motion.

Force, definition and units.

Composition and resolution of forces.

Resultant of parallel forces, center of gravity.

Couples, moments of forces.

Gravitation; law of universal gravitation.

Equilibrium; stable, unbstable, and neutral.
Falling bodies.
Cirvilinear motion; centrifugal force.
Simple pendulum.
Work and energy; definitions and units.
Power, definition and units used.
Kinetic and potential energy.
Transformations of energy; conservation of energy.
Machines, general principle of.
Mechanical advantage, efficiency.
Levers, pulleys, wheel and axle, inclined plane.
Friction; co-efficient of friction, angle of repose, loss of energy due to friction.
Fluids; definition of fluid, liquid, gas.
Pressure, definition and units.
Pascal's principle, hydraulic press.
Pressure due to gravity.
Equilibrium of liquids; liquids in communicating tubes.
Archimedes' principle; buoyancy; equilibrium of floating bodies.
Density, specific gravity.
Atmospheric pressure, barometer.
The air-pump, vacuum.
Buoyancy of the air, balloons.
Hydraulic machines; suction pump, force pump, siphon.
Boyle's law.

HEAT.

Nature of heat.
Distinction between temperature and quantity of heat.
Thermometers; fixed points, thermometric scales, Centigrade and Fahrenheit scales.
Thermal expansion of solids and liquids, coefficient of linear expansion, coefficient of cubical expansion.
Expansion of gases, Charles' law.
The absolute zero, absolute temperature.
The gas law, $pv=RT$.
The calorie.
Thermal capacity, specific heat.

Melting point, latent heat of fusion.
Evaporation, vapor pressure.
Boiling point, heat of vaporisation.
Transmission of heat, conduction, convection, radiation.
Mechanical equivalent of heat.
Steam engine; efficiency, nature of losses.
(Gas engine, or internal combustion engine.)

SOUND.

Periodic motion, simple harmonic motion.
Period, amplitude, frequency.
Transverse and longitudinal vibrations.
Waves, wave length.
Transmission of sound, velocity of sound in air and other media.
Reflection of sound.
Free and forced vibrations, resonance.
Loudness, pitch, quality, physical causes of.
Vibrations of strings.
Fundamental and overtones.
Vibrations of columns of air.
Beats; harmony and discord, physical cause of.

OPTICS.

Nature of light, reasons for assuming the ether.
Velocity of light.
Rectilinear propagation, shadows, pin-hole images.
Intensity of light, law of inverse squares, candle power, photometry.
Reflection, regular and diffuse; law of regular reflection.
Images produced by plane mirrors.
Spherical mirror, descriptive study.
Refraction, total reflection, prisms.
Lenses, formation of images, focal length.
Spherical aberration.
Dispersion, the spectrum.
Spectra of different substances.
Chromatic aberration; achromatic lenses.
Physical explanation of color.
Optical instruments; simple magnifier, compound micro-

scope, astronomical telescope, opera glass, projection lantern, camera, the eye.

MAGNETISM AND ELECTRICITY.

Natural and artificial magnets, induced magnetism, permanent and temporary magnetism.

Poles.

Magnetic needle.

Magnetic fields, lines of force.

Terrestrial magnetism, dip, declination, isogonic lines.

Static electricity, charges, positive and negative electricity.

Coulomb's law, unit charge.

Electrostatic induction.

Electric currents.

Volta's cell, Daniell's cell.

Electrolysis, voltameters, the ampere.

Electromotive force and resistance, the volt and the ohm, Ohm's law.

Dependence of resistance of length, cross-section, and material of conductors, specific resistance.

Series and parallel connections of cells and conductors.

Heating effects of currents, Joule's law.

Magnetic effects of currents.

Galvanometers, tangent galvanometer, D'Arsoval galvanometer, ammeter volt meter.

Electromagnets.

Electromagnetic induction, by moving magnets and by changing magnetic field.

Induction coils, transformers.

The dynamo, generators, motors.

The electric arc incandescent lamps.

Telegraph, telephone.

The following are a few suitable textbooks:

Carhart and Chute: First Principles of Physics. Pp. 434. Allyn & Bacon, Boston and Chicago.

Milikan & Gale: First Course in Physics. Pp. 488. Ginn & Co., Boston.

Hoadley: A Brief Course in Physics. Pp. 463. American Book Co., New York, Cincinnati, and Chicago.

Mann & Twiss: Physics. Pp. 453. Scott, Foresman & Co., Chicago.
Linebarger: Textbook of Physics. Pp. 471. D. C. Heath & Co., Boston.

BOOK FOR THE TEACHER.

Smith and Hall: The Teaching of Chemistry in Secondary Schools. Longmans.

DEMONSTRATION EXPERIMENTS.

It is very desirable that experiments illustrative of the principles studied should be performed before the class from time to time. This has the advantage of keeping attention of the class on actual facts, rather than on textbook descriptions.

Such experiments require a certain amount of apparatus, but a great deal can be accomplished with a very simple and inexpensive apparatus, and by the use of ordinary objects. For instance, the production of heat from mechanical work can be illustrated by boring a hole in wood with a gimlet. The devising of such experiments must be largely a matter of ingenuity on the part of the teacher, and of having sufficient time and enthusiasm to prepare them. The simpler the apparatus used, the more apparent is the connection of the subject with every-day affairs.

Many textbooks contain descriptions of demonstration experiments (usually inserted in fine print at the proper places) illustrative of the various topics studied. Carhart and Chute's High School Physics and Hoadley's Brief Course in Physics, are particularly good in this respect.

Regarding experiments requiring apparatus other than every-day objects, the apparatus for such experiments can be obtained from dealers in laboratory supplies. It is usually cheaper to buy things than to make them, if proper allowance is made for the value of the time spent in making them. A good many objects useful in experiments—like wei ghts blocks, clamps, rods, wire, etc.—can be obtained more cheaply locally than from the dealers in laboratory supplies; but most apparatus has to be obtained from such dealers. The particular selection would have to depend so much upon the amount of funds available and on local conditions, that

it does not seem worth while to attempt to give a list of articles needed. Such a list could be made for any individual case, by making a list of the demonstration experiments to be given (which may conveniently be selected from those given in some textbook), and then listing the various articles needed for each one, of course avoiding duplication when the same article can be used for two or more different experiments. The prices can be found in the catalog of a laboratory supply dealer, and the list to be ordered adjusted to the funds available.

The following are a few companies dealing in laboratory supplies:

Central Scientific Company, 14-28 Michigan St., Chicago, Ill.

Wm. Gaertner & Co., 5347 Lake Ave., Chicago, Ill.

W. and L. E. Gurley, Troy, N. Y.

International Instrument Company, 23 Church St., Cambridge, Mass.

L. E. Knott Apparatus Company, Harcourt St., Boston, Mass.

C. H. Stoelting Company, 31-45 West Randolph St., Chicago, Ill.

Arthur H. Thomas Company, Philadelphia, Penn.

The first, fifth, and sixth in the above list appear to give especial attention to general laboratory equipment suitable for high school work: the others to special apparatus of high quality.

Laboratory Work.

Each pupil should be required to perform for himself a certain number of experiments. Several advantages are gained by work of this kind. By actual handling of physical apparatus, a pupil can get a much better general familiarity with it than by merely seeing it or reading about it; habits of accurate observation can be stimulated; system and neatness in taking notes can be cultivated; but above all things, the pupil can be drilled in one of the most important processes of thought of physics and related sciences, namely, that of measurement, or the representation of physical things by

numbers. The importance of this process, not merely from a practical point of view, but from the point of view of an understanding of the science, has been well stated by Lord Kelvin in the following words: "I often say that when you can measure what you are speaking about, and express it in numbers, you know something about it; but when you can not measure it, when you can not express it in numbers, your knowledge is of a meager and unsatisfactory kind; it may be the beginning of knowledge, but you have scarcely in your thoughts advanced to the stage of science."

About thirty laboratory periods, each of two hours, should be devoted to laboratory work. This should provide time for about thirty experiments. The following list is suggested.

MECHANICS—Thirteen Experiments.

1. Density—Weight of unit volume of substances.
2. Buoyancy—Archimedes' principle for a sinking body.
3. Specific Gravity—Solid heavier than water.
4. Specific Gravity—Liquid—Specific gravity bottle.
5. Specific Gravity—Liquid—Displacement method.
6. Compressibility of Air—Boyle's Law.
7. Density of Air—Weight of a liter of air.
8. Levers.
9. Parallelogram of Forces—Three forces in one plane, all applied at one point.
10. Friction—Sliding friction between solid bodies.
11. Friction—Co-efficient of friction.
12. Pendulum—Effect of mass. Amplitude, length.
13. Elasticity—Elastic bending of a rod—Varying load (Hooke's Law).

SOUND—Two Experiments.

14. Sound—Wave length of sound.
15. Sound—Number of vibrations per second of a tuning fork.

HEAT—Four Experiments.

16. Thermometery—Testing a mercury thermometer.
17. Expansion—Linar expansion of a solid (Lever Method).

18. Calorimetry—Heat of melting for ice.
19. Calorimetry—Specific heat of a solid.

LIGHT—Five Experiments.

20. Reflection—Images formed by a plane mirror.
21. Reflection—Images formed by a convex cylindrical mirror.
22. Reflection—Images formed by a concave cylindrical mirror.
23. Refraction—Index of refraction for glass.
24. Lenses—Focal length of a converging lens.

MAGNETISM AND ELECTRICITY—Eight Experiments.

25. Magnetism—Lines of force about a bar magnet.
26. Simple Cell—Study of a single fluid cell.
27. Daniell Cell—Study of a two fluid cell.
28. Resistance—Resistance of wires by substitution: Different lengths.
29. Resistance—Resistance of wires by substitution: Multiple arc and cross-section.
30. Resistance—Battery Resistance: Combination of cells.
31. Power—Efficiency test of an electric motor.
32. Electro-decomposition—Electroplating with copper and nickel.

The apparatus needed for these experiments can be obtained from dealers in laboratory supplies; a list of some dealers is given on page 135. The cost of a set of apparatus to enable one student to perform all of the above experiments is approximately $100.00.

For carrying out experiments, each pupil should be supplied with definite instructions, and this can best be accomplished by the use of a laboratory manual. The following are a few suitable laboratory manuals:

Chute: Physical Laboratory Manual. D. C. Heath & Co. 267 pp.

Smith, Tower & Turton: Manual of Experimental Physics. Ginn & Co. 324.

Turner & Hersey: National Physics Notebook sheets. (This is a manual and note-book combined; it is arranged

to be bound up out of loose leaves, so that a book can be made up containing just the experiments which it is desired to perform.) L. E. Knott Apparatus Company, Boston, Mass.

Notes must be taken by each pupil, and a report of the experiment submitted to the teacher. The notes should make clear statements of the following things:

1. The purpose of the experiment.
2. A description of the apparatus used; this can generally be best done by drawing a sketch or diagram, with letters on it to indicate what the various parts of it are meant for; the idea should be to make clear to a reader what arrangement was actually used, and not primarily to make an accurate or an artistic drawing.
3. What was done with the apparatus.
4. The data observed. These will usually be numerical, and should be tabulated systematically. Things actually observed should be noted under this head, and not merely deductions from them. For instance, if the area of a rectangular surface is to be a part of the data, the length observed and the breadth observed should be made a part of the notes; not simply that area found by multiplying length and breadth together.
5. All computations or other deductions based upon the date.
6. The conclusions that can be drawn from the work should be explicitly stated.

There is a certain analogy between the proper presentation of notes on a physical laboratory experiment, and the presentation of a demonstration in geometry. Thus, in the above, 1 corresponds to the statement of the theorem, 2 to the construction with its explanation, 3, 4, and 5, to the proof, and 6 to the statement of conclusion, introduced by $\therefore$ and followed by Q. E. D. Effort should be made to have the notes presented in just as methodical and logical form as that used in demonstrations in geometry.

A regular form of note-book should be prescribed, and all pupils required to use the same kind. The following features are very desirable in a physical laboratory note-

book: Size of page not less than about 6 by 9 inches, so as to give room for sketches and diagrams. Ruling both vertical and horizontal; this is helpful in drawing sketches and diagrams, in tabulating data, and arranging computations. A loose-leaf book, with covers for binding, has some advantages; such a note-book is the "Atlas Science Tablet," gotten out by the Atlas School Supply Company, Chicago.

In the opinion of the writer, it is just as important to insist on having the notes presented in good form, as it is to see that the manipulation of the experiment is properly carried out. The instructor should not hesitate to require a whole set of notes to be entirely re-written if not presented in proper form. Of course observed data and computations should be checked by the instructor before accepting the work on any experiment. Neatness of the notes is very desirable, and should certainly be insisted upon, up to a certain point; but it is possible to exaggerate the importance of mere appearance, as compared with substance. The effort to secure neatness leads some pupils to take temporary notes on loose sheets, with the idea of copying them later into the regular note-book; this is objectionable; when the loose sheets do not get lost, mistakes are made in copying, dead labor is increased, and the pupil is likely to go ahead without first finding out what he is supposed to be doing. If the pupil will first find out what is to be done in the experiment, then arrange his note-book, and then perform the experiment, taking notes in it as he goes along, the results are likely to be more satisfactory, even at the sacrifice of some neatness.

The laboratory note-book should be preserved by the pupil after the conclusion of his course, especially if he expects to enter college, since in that case he should submit it for credit in meeting entrance requirements.

Inspection Trips.

Interest may be stimulated, and the bearing of physical science on practical affairs illustrated, by occasional inspection trips to various installations. Nearly every high school is within reach of some of the following: an electric lighting

plant, an artificial ice factory, a telephone exchange, a telegraph station, a weather observing station, a lighthouse, a water works plant.

Usually the persons in charge are quite ready to welcome visitors. To spend two or three laboratory periods in the course of a year in visiting installations, where practical results are obtained by the use of principles that the class is studying, is likely to be well worth the time it takes.

TEACHER TRAINING.

The demand for teachers, who have some professional training and teaching under the direction of skilled instructors, is becoming greater and more urgent each year. Many school officials will not employ, if they can possibly avoid it, teachers who have had no instruction in the best methods of teaching and managing children. Everyone now believes that the teacher must be trained for her special work the same as other workmen for their special work, if she is to do her best. Not only is the demand greater than ever, but the salary for the teacher who has made a special study of her work and is skilled in it, is much greater than that of the unskilled. This is becoming just as true among teachers as among other workmen.

The demand is far greater than the supply, and at present, Florida, like many other states in the Union, is not able to meet this demand as it ought to be met. Most of the communities are finding people with certificates who will keep their schools, but there is a great scarcity of those who have had any special training. The smaller town schools and rural schools find it almost impossible to get teachers who have made any preparation for their work other than the securing of their certificates.

It is also true that from thirty to fifty per cent of all the high school graduates of this State, and many of those who do not graduate, become teachers, in the public schools of Florida. When we consider this fact in connection with the great demand for trained teachers, we must conclude that the high schools of the State must provide for more effective training for teachers. As conditions now are, many schools in the State provide short review courses for teachers that they may get ready for the county examinations. Far more than this should be undertaken by the high schools. These review courses can not undertake to train young people to teach. They are too short and too much in a hurry for anything save the cramming of the mind with disconnected

facts that they may be put down in answer to questions on the examinations.

The high school would not have to prepare teachers in this haphazard manner. Its purposes and methods would be different and it would at all times look to the real training and scholarship and fitness of its future teachers, as it does to all its pupils, rather than to the obtaining of a certificate in the shortest time possible. Not only would it have sufficient time to give a fair special training for teachers, but the average high school is especially fitted in teaching force and in equipment to give a good practical training to the young teacher. Here we find the real conditions, the real facts, not theories, under which the future teachers must work; here we find many efficient and well trained teachers in charge of the great practice school for these future teachers; here we find the most ideal practice school in all the land for showing young teachers how to teach, how to manage, how to get along in a community, and how to become an all-round, efficient and skilled teacher. No normal school can be better prepared in a great many ways to give these elementary courses in teacher-training than many of our high schools.

The special professional training for teachers should not receive its great emphasis until the pupil has finished the second year of the high school. Before that time, pupils are too immature and are not sufficiently trained to profit most by this special training. However, it is possible to do much toward preparing them to teach during the first and second years. During these two years, reviews of the elementary subjects may be given with profit. All pupils in the high school would derive great benefit from these and they could be given rapidly and would thus take little time from the regular work. A few schools in the State are now following this practice to advantage.

At the beginning of the third year, the strictly professional work should begin and should continue for two years. The third year's work should consist of classroom management and reviews of certain of the elementary school subjects with the methods of teaching them. This

work should occupy five periods per week like other subjects, and should give two or three periods to classroom management and two or three, as the case may be, to the reviews and methods.

The classroom management should cover the most important problems that will confront both the rural and urban teacher. The rural school should receive especial attention.

The reviews should cover the subjects from the standpoint of the future teacher. The methods will be gotten from the textbooks on methods and from observation of class work in the elementary grades. Here a most vital part of the real training will be gotten.

In the fourth year, the work should consist of elementary psychology, reviews and methods of the elementary subjects and practice teaching in the grades. This work will occupy five periods per week, as in third year work.

The course in psychology should be elementary, but should cover the great and well-known psychological laws and principles. It should cover a good elementary textbook on the subject.

The reviews and methods will be similar to those given in the third year. The practice teaching should consist of work under the supervision and observation of the best teachers in the elementary school, and of substitute teaching by the strongest pupils when the regular teachers are sick or are from any cause not able to meet their classes.

This subject of teacher-training as is above outlined, can be substituted for any other subject, save English, perhaps, in the courses of studies as given in another part of this bulletin.

The need for more trained teachers is so great in our rural and small town schools that it is hoped that high school officials, county boards, and local boards and teachers may give the question of teacher-training in the high schools careful consideration. There is no reason why high schools cannot, in the near future, relieve, to a certain extent at least, the great scarcity of young men and women who know how to teach.

Textbooks suitable for the work as above outlined follow:

For Third Year's Work.

Bagley's Classroom Management, Macmillan.
Seeley, A New School Management, Hinds, Noble & Elridge.
Dinsmore, Teaching a District School, American Book Co.
Foght, The American Rural School, Macmillan.
Winterburn, Methods in Teaching, Macmillan.
McMurry, A Series of Books on the Special Methods in all of the Elementary Subjects, Macmillan.
Southerland, The Teaching of Geography, Scott, Foresman & Co.
Smith, The Teaching of Elementary Mathematics, Macmillan Co.
Chubb, The Teaching of English, Macmillan.
Taylor, Principles and Methods of Teaching Reading, Macmillan.
Arnold, Learning to Read, Silver, Burdett & Co.

For Fourth Year.

Same as for third year save for the following, on psychology.
Betts, The Mind and Its Education, Appleton.
Wenzlaff, The Mental Man, Chas. E. Merrill Co.

TEACHERS' PROFESSIONAL BOOKS AND MAGAZINES.

Each high school teacher should have an acquaintance with the History of Education, and modern Psychology, especially as it applies to the high school pupil, and should be familiar with the principles and methods of teaching those subjects that he has to teach, and with the general high school problems. The only possible way to get this information while engaged in teaching is to own and study books and magazines on these subjects. Every high school teacher should buy and own for his constant use, one or more books on each of the above subjects. It would be wise, when books are being bought for the high school library, to include in the list books for the professional training of high school teachers. These in the hands of a good principal will assure the community of a better and more progressive high school. Too few of our high school teachers have received any professional training, and they will never receive it unless some provision like the above is carried out. Progress cannot be made without knowledge, and knowledge cannot be had without study. The successful high school principal and teacher must, year by year, keep abreast of the times by reading and studying the thoughts and plans of our educational leaders. To this end the new and modern books must be had and read.

Besides the bibliographies given under each of the outlines of the different subjects, below will be found the names of a few books and magazines that are of especial value to high school teachers. It is urged that teachers provide themselves with as many of these as they can.

PSYCHOLOGY.

*Betts, The Mind and Its Education, Appleton.
*Bolton, Principles of Education, Scribner's.
Dewey, How We Think, Heath.
Hall, Youth, Its Ed. Regimen and Hygiene, Appleton.
Pillsbury, Essentials of Psychology, Macmillan.
Yerkes, Introduction of Psychology, Macmillan.

*Calkins, A First Book in Psychology, Macmillan.

If the teacher has never read any psychology, the book by Betts is recommended. Otherwise one of the other books.

History of Education.

*Brown, The Making of Our Middle Schools, Longmans.
*Monroe, Textbook in the History of Education, Macmillan.
*Quick, Educational Reformers, Appleton.
Davidson, Education of the Greek People, Appleton.
Farrington, Secondary Education in France, Longmans.
Paulsen, German Education Past and Present, Scribner's.
Russell, German Higher Schools, Longmans.

Principles and Methods of Teaching.

Charters, Methods of Teaching, Row, Peterson & Co., Chicago.
*DeGarmo, Principles of Secondary Education, 3 vols., Macmillan.
*McMurry, The Method of the Recitation, Macmillan.
Ruediger, The Principles of Education, Houghton, Mifflin & Co.

Supervision and Administration, Etc.

Brown, The American High School, Macmillan.
*Hollister, High School Administration, Heath.
*Johnston, High School Education, Scribner's.

The Reports on Secondary Education in the N. E. A. Reports. Address N. E. A. Secretary, Winona, Minn.

Reports of the Bureau of Education, Washington, D. C.

Magazines for High School Teachers.

*The Educational Review, $3, The Educational Review Pub. Co., Columbia University, New York City.

The School Review, $1.50, Chicago University Press, Chicago, Ill.

Education, $3, The Palmer Co., 120 Boylston St., Boston, Mass.

*Starred books and magazines are especially recommended. All of the above books are good.

For special books on methods in teaching the different high school subjects see lists of books for teachers under the special subjects outlined in this manual.

Vol 7 November 1912 No 4

Commencement Number

Baccalaureate Sermon and Address Before University Y. M. C. A.

Sunday, May 26, 1912

By George H. Cornelson, D.D.
Pastor First Presbyterian Church
New Orleans, La.

Commencement Address

Tuesday, May 28, 1912

By Professor Edwin D. Starbuck, Ph.D.
Professor of Philosophy
The State University of Iowa
Iowa City, Iowa

1912
Pepper Publishing & Printing Company
Gainesville, Florida

Commencement Calendar
1912

Friday, May 24th

Gymnastic Exhibition, 8:00 p. m.

Saturday, May 25th

Musical and Dramatic Evening, 8:00 p. m.

Sunday, May 26th

Baccalaureate Sermon, 11:00 a. m.

By Geo. H. Cornelson, D. D.
Pastor of the First Presbyterian Church
New Orleans, La.

Address Before Y. M. C. A., 8:00 p. m.

By Dr. Geo. H. Cornelson

Monday, May 27th

Declamation Contest, 10:00 a. m.

Alumni Meeting, 5:00 p. m.

Oratorical Contest, 8:00 p. m.

Alumni Banquet, 9:30 p. m.

Tuesday, May 28th

Graduating Exercises, 10:00 a. m.

Address

By Professor Edwin D. Starbuck, Ph. D.
Professor of Philosophy,
The State University of Iowa,
Iowa City, Ia.

DREAMS AND VISIONS: WHAT WE SHOULD DO WITH THEM

Baccalaureate Sermon, Sunday, May 26, 1912, by GEORGE H. CORNELSON, D.D., Pastor First Presbyterian Church, New Orleans, La.

I am going to ask the special privilege, young men, of a double text. For my attempt to render the service you naturally expect, I need the correlative principles found coming fresh from the hearts of two of the most inspirational young men I know in all history. The first of these principles is from the ebullient adolescence of Joseph, afterward prime minister of Ancient Egypt; the second is from the unique incident in the life of Saul of Tarsus, which is the only adequate explanation of his startling transformation to Paul, "the bond-slave of Jesus Christ," the unparalleled hero of Christianity.

The Scripture references are Gen. xxxvii:19-20, "Behold, this Dreamer cometh; We shall see what will become of his dreams," and the book of The Acts xxvi:19, "I was not disobedient unto the heavenly vision."

No man is so foolish as to expect instruction from every dream he has any more than from every thought that visits his waking mind. Yet everyone who has made any profitable study of himself is aware that he has drawn a large part of that self-knowledge from his unconscious hours. As the naturalist would know but a small part of the animal kingdom by studying only the creatures that show themselves in the daylight, so there are moles and bats of the Spirit that exhibit themselves most freely in the darkness, and there are jungles and waste places in character which, if you look on in the sunlight, may seem safe and lovely, but at night show themselves full of all loathsome and savage beasts. In the realm of dream the shy creatures of the mind most boldly disport themselves.

It was because Joseph's dreams embodied his waking ambitions that they were of importance; for dreams become significant when they are the concentrated essence of the main stream of our waking thoughts, picturesquely exhibiting the tendency of character. From the depths of the book of Job, there comes to us over the lips of the fervent Elisha this oracle: "In a dream, in a vision of the night when deep sleep falleth upon men, in slumberings upon the bed, then God openeth the ears of men, and sealeth their instruction, that He may withdraw man from his purpose." Is not this the precise purpose of dreams? Our tendencies unbridled by reason and fact in the dream run to results? The purposes which the matter-of-fact influences of the day have kept down act themselves out in our dreams. We see, then, the character unimpeded by social checks, as it would be were it unmodified by the restraints, efforts and external considerations of our conscious hours. The thought or feeling we have fondly suffered to creep and glide about our heart seems in our dreams to become a deed, and from that finished result we are startled, awaking with a "Thank God," and are withdrawn from that purpose.

Young Joseph saw, in mystic, entrancing dreamland, his upright sheaf, the object of obeisance, and the sun, moon and eleven stars paying their homage to him, because his waking hours too constantly teemed with intense desires and burning aspirations, to excel all who made up his little world.

Now it has been wisely said, "Our wishes are the foretelling of our capabilities." Certainly when there is any special gift or talent in a man, the wish of his youth is predictive of his attainment in manhood.

From the crude egotism encrusting Joseph's dreams, derided by those who cannot see the Caesar in the careless trifle, there emerges for the discerning mind a potent principle which has ever been an essential factor in all truly progressive society. Joseph saw, obscurely indeed, but clearly enough to make him deeply thoughful, that the man whom God chooses to make a blessing unto others, is so

far advanced above his fellows that they lean upon him, and sooner or later, pay him homage as if he were in the place of God to them. He saw that his special powers were to be used for his brethren, and that the high destiny he somehow felt to be his, was to be won by doing service so essential that his family would bow before him and give themselves unto his hand. He saw this, as every man whose self-knowledge, self-reverence and self-control keep pace with his talent sees it, and Joseph, so far, splendidly anticipated the majestic dignity of Him who, as the Strong Son of God, in the world's deepest sacrifice, assumed a position and asserted claims which enraged His brethren and made even His believing mother to marvel.

Joseph's dreams in their essential import came true. But that was long years after; only after he had nobly endured the hard purging process of a discipline which dragged him through the varied, vigorous experience of that dank, dark pit into which his brethren threw him, of that slippery, treacherous slavery in Potiphar's house, and of its longer resultant dreary imprisonment. But, mark you, young men, a discipline which so clarified those glowing dreams of his youth, and purified them from their rank egotism and perilous pride, that they had become for his manhood vision indeed, clean, noble and spiritual, a heavenly vision by which he could see life clearly and see it whole.

Young people naturally feel strongly that life is all before them, that this present life is their chief concern; therefore, God must be proved to be sufficient for their conception of life, and able to bring them to a full realization of their fascinating dreams. The first lesson they have to learn, is that mere youthful confidence and buoyant energy, shining assets as they are, are yet not the qualities that overcome the world. They have to learn that humility and the ambition that seeks great things, but not for self, are the qualities really indispensable. But do men, especially young men, become humble by being told to become so, or by knowing they ought to become so? Nay, verily, God must make us humble by the actual experiences of our or-

dinary life. Joseph, no doubt, knew well what his aged grandfather, Isaac, must often have told him; that a man must die before he begins to live. But what could a happy, ambitious youth make of that, till he had tested the bitterness of the pit, the bondage and the prison? Thus as truly passing through the darkness of death as Isaac on Moriah's Mount has passed through it, and as keenly feeling the pain of severance from the light of life. Then, but not till then, he thought with any enlightenment of Isaac and of Isaac's God; until between himself, helpless and desolate, and his black, hard environment, the Everlasting Arms seemed to interpose, and through the darkness of his deathlike solitude, the face of Jacob's, his father's, God, appeared to beam upon him, and he came at last to feel, what we all must, by some experience, be made to feel, that not in this world's life, but in God, we live and move and have our being; that therefore nothing can befall us which God does not will, and that what God has us to do He will enable us, in spite of earth and hell, to do.

"Behold, this Dreamer cometh; we shall see what will become of his dreams!" So we, too, greet you each today, young men—your loved ones, your friends and well-wishers. Not with any irritating sarcasm or aught in malice, I assure you, but in fond hope, genuine sympathy and love, all baptized with the prevailing prayer that those roseate early dreams whose urgent pressure sent you to this noble institution of education, and kept you under the vigorous discipline of its tasks, trials and temptations, have been thereby transformed and transfigured into veritable vision.

Let me entreat you; remember that it is not only those whom men mark as saints and heroes who are privileged to have worthy visions. It is the ordinary folk as well who will to hear the Voice Divine with its arresting calls to duty, by whose spiritual power the fantastic fabric of our dreams is reordered and rewoven into the radiant texture of a heavenly vision.

Whatever else your history up to this good hour has evoked for you—your home, school and college years, shot through as they all have been, with many a happy, swelling,

flattering dream—this, above all, should be clear—if those pristine years are not to be hideous and harrowing nightmares forever to your spirit—that there has emerged upon your soul's horizon, out from the weltering confusion of your youthful dreams, aspirations and ambitions, a manly, heavenly vision, whereby you know, as one of the deepest fact of your consciousness that the Eternal Purpose, in His beneficent will for the world, has a life-work for you to accomplish, a character for you to achieve, a personality for you to develop, wanting which the world itself will be sadly poorer forever, and God Himself, bereaved and deeply grieved in the loss of a well-beloved son.

I must challenge you today, young men, each upon the basis of your past as you know it: Can the image of your future as you now seriously prefigure it, be less rich in its content than I have hinted, or less distinct in its outline? Nay, I solemnly declare that the facts in your careers hitherto, as any one may know them who is at all acquainted with the conditions of our American young life, force me to take this yet higher ground with you, that the character you know you ought to achieve, the man you know you ought to be, if you are not going to belie all the pregnant features and essential issues of your favored past, stands even now imaged on your vision, in all his vital enduring elements, a likely copy of that Perfect Man to whom Paul refers in the simple secret of his life, "I was not disobedient to the heavenly vision," and before whom he prostrated himself in humblest soul-submission, "Lord, what wilt Thou have me to do?" Yes, by all that is worthy in your past, by all the rich promise of your present, by all that renders your future of real value, I declare that heavenly vision of the apostle yours. And I must insist, as all the facts fully warrant, it is not yours (which God forbid) only by your own deliberate and repeated rejection of it.

"Where there is no vision the people perish." Not other wise is it with the individual, but as essential as is vision, though it be the heavenly vision, there must be more, if true life is to be won. Judas Iscariot had in substance the same heavenly vision which Paul had, but if there is

one life among men, by the general consensus of informed opinion, branded as lost and failure, it is that of Judas, in face of his heavenly vision. Paul's open secret is, "I was not disobedient to the heavenly vision." There must be both the vision and the obedience, and they must be in that order. Paul had no magic secret, no spiritual wizardy that kept labor and suffering sweet to him; but he had Vision and he gave it obedience.

Many who have fine visions and dream great dreams do nothing else. When in the mood they are filled with ideals in which they revel with large emotion and passionate enthusiasm, but when they turn from the airy fabric of their vision and touch hard fact, so that they see the task awaiting them as the legacy of the dream, their heart fails them, and they are helpless and hopeless. According to a recent critic, Shakespeare gives us the classic illustration of this type. "There is no such grand failure in all the history of that mankind which genius has created for the world as Hamlet, Prince of Denmark. And the abyssmal depths into which he falls, the wide roads of agony which his very powers place in front of others, the whole sad missing of life's great end, come from his weakness at a single point—the point where Paul made connection, vital and faithful, between his every vision of truth and his duty which waited to be done." Is it any puzzle that a practical, thoughtful world never wearies of the lurid fascination of Hamlet's tragical soliloquy, sinking down to its pitiable confession?

> "Thus conscience does make cowards of us all;
> And thus the native hue of resolution
> Is sickled o'er with the pale cast of thought;
> And enterprises of great pith and moment
> With this regard their currents turn awry,
> And lose the name of Action."

Vitally true is Lowell in his virile essay, Shakespeare Once More (which let me commend to your study). "Hamlet dwells so exclusively in the world of ideas that the world of fact seems trifling. Like a musician, distrustful of him-

self, he is forever tuning his instrument, first over-straining this cord a little, then that, but ever unable to bring them into unison, or to profit by it, if he could. He breaks down the bridges before him, not behind him, as a man of action would do. Hamlet may teach us that all the noblest gifts of person, temperament and mind slip like sand through the grasp of an infirm purpose."

Paul's vision was enough to keep him dreaming forever. Yet it did but put a mysterious spiritual grandeur of fact and thought behind his life, from which he was continually drawing strength and light. For Paul was no Hamlet. All life lay before him, wherein his dreaming and activity should play back and forth; each strengthening the other, each taking up the other's power, until in both his soul and his tasks the whole hidden meaning of his vision should be found.

This was Paul's life. Between that vision of his glorified Redeemer and the world's need he stood. Sometimes he seemed wholly dreaming—to be rapidly gazing again, in Roman prison or on storm-lashed sea, upon that celestial Face, or entranced by the commanding music of the Divine Voice; but the truth is that in the most exhausting performance of duty he was just putting forth from hand and head and heart that dear old vision; and as its power and inspiration went out from Paul in manifold forms of labor, as event and achievement came like new creations from his unwearied soul, he saw in them all the re-manifestations of that once mysterious sight, now so much more plain, now so much more reasonable than ever before.

"This one thing I do: I press toward the mark for the prize." Well has one of the wisest teachers of our day declared, voicing the best tested returns of our new psychology: "Truth is truth only to the mind of God, out of whom it comes, and to the mind of man, to whom it is sent. And there is nothing more awful on the earth than the refusal to transmit truth which comes to us—nothing more terrible in itself and in its consequences than a quiescent, contemplative mood of meditation which involves disobedience to the heavenly vision."

A man feeds on truth only by doing it. It never discloses its power until he risks his life in some measure with it. He really believes it, only as he does it. It is this close relationship of human life and truth which lies at the bottom of that fateful fact that a man who does not give living form to the truth which he does believe, loses his very capacity for belief, and the madness and hell of skepticism is his doom.

"The time is out of joint, O cursed Spite,
That ever I was born to set it right!"

The doleful consciousness of one who is powerless in the clamorous presence of truth and duty. He cannot now transmute his dream into action. No entranced rambler amid the misty mazes of speculation was Paul, "no dreaming dweller in those cloud towers by ghostly masons wrought," was he, but a great, brave, practical man of mightiest enterprise and concrete achievement. "I was not disobedient to the Heavenly Vision." "It is God that worketh in you, both to will and to do of His good pleasure," Paul declares to be the heavenly vision for every man; yet because of that vision he pleads with every man; he commands in the tones of destiny, "work out your own salvation with fear and trembling." And gruff old Carlyle, catching up that Pauline dictum, roars out upon us in his spavined, disjointed periods, "The situation that has not its duty, its Ideal, was never yet occupied by man. Yes, here, in this poor, miserable, hampered, despicable, actual thou even now standest, here or nowhere, is thy Ideal! Work it out therefore; and working, believe, live, be free!" "Be no longer a chaos, but a world, or even a worldkin. Produce, Produce! Were it but the pitifulest, infinitesimal fraction of a product, produce it, in God's name."

Is it not very plain, only thro' works, that is some real expression of our largest self, our noblest Vision, can there come to us in full measure any character, influence or happiness? Any yet, and yet, how often we stand in shameful need of the spur from our boyhood's rhymes!

"Dreaming is pleasant, I know, my boy,
Dreaming is pleasant, I know,
To dream of that wonderful far-off day
When you'll be a man and have only to say
To this one and that one, do that and do this,
While your wishes fulfilment never shall miss,
May fill you with pleasure;
But deepen the joy of doing a thing yourself, my boy,
Of doing a thing yourself."

On the authority of Mr. Lecky, in his most stimulating volume, The Map of Life, "Nothing which is learned in youth is so really valuable as the power and the habit of self-restraint, of self-sacrifice, of energetic, continuous and concentrated effort."

Let us have it settled, then; no mere truth-hunting, no speculation, no high emotion, dreams, raptures, thrills, nor beatific vision will avail anything, but condemnation, if they do not mean better character shown in more active obedience. Believe me, the Biblical vision is always the stirring appeal, "What doest thou here, Elijah?" ever demanding the prompt, determined response of the young Isaiah, "Here am I, send me!" There is no transfiguration scene, tho' the Son of God Himself be at its center, that allows any easeful tarrying on the mountain's top. How surprisingly early in His Perfect Life there came the indignant consciousness, "Wist ye not that I must be about my Father's business?" With what heroic steadfastness that consciousness wrought out in Him "the highest, holiest Manhood," "I must work the works of Him that sent me," even to its finality, "Father, I have finished the work thou gavest me to do." With what absolute authority He lays down as the life-principle for all truth-seekers, "If any man willeth to do his will, he shall know of the teaching, whether it be of God."

Paul never lost his vision by action. Indeed, the life of action is never deep or enduring, save with the life of Vision, to which it is looking. The life of Vision is never healthy, sane or manly, save with the life of action follow-

ing hard upon its guidance, thro' which it is becoming crystallized and precipitated into the Concrete, the Actual, the Real.

I venture the statement, that the most significant note of our present day philosophy in its practical bearing on human life is just the ringing emphasis it is sounding upon this truth. Prof. Josiah Royce, of Harvard, psychologist, historian, philosopher, and I know not what else, is never weary in proclaiming this principle, under the banner of that grand old term, "Loyalty,"—regarding it, he declares, "a peculiarly precious mission, to simplify man's moral issues, to clear their vision for the sight of the Eternal, to win hearts for loyalty—which is the heart of all the virtues, the central duty of all duties." Defining the noble word for us, he says, "Loyalty is the willing and practical and thorough-going devotion of a person to a cause. A man is loyal when, first, he has some cause (some vision) to which he is loyal; when, secondly, he willingly and thoroughly devotes himself to his cause; and when, thirdly, he expresses his devotion in some sustained and practical way by acting steadily in the service of his cause." "Reverberating all thro' you, stirring you to your depths, loyalty first unifies your plan of life—and thereby gives you what nothing else can give—yourself as a life lived in accordance with a plan, your conscience as your plan interpreted thro' your ideal, your cause expressed as your personal purpose in living." "Religious faith, indeed, relates to that which is above us, but it must arise from that which is within us."

Any faith which has a worthy religious object is either a merely mystic ecstasy, or else it is a loyalty which never exists without seeking to bear fruits in works. Therefore, be loyal! Grow in loyalty. Therein lies the source of a religious insight free from superstition; therein also lies the solution of the problems of the "philosophy of life."

Julius Caesar, glancing back once over his military career, said, "At Alesia, Pharselia and Thapsus I fought for victory (its fame, renown and earthly glory); but at Munda I fought for life."

Young men, in what I have been trying to say I would

have you know that, whatever may have been the motives of your warfare in the past, from this date you begin your battle of Munda. From now on, you fight for life; wherefore we urge you, lay hold on Eternal Life, fight the good fight of faith—faith which has the sensitive eye for the Heavenly Vision and the loyal arm strong for obedience.

The real Caesar, not the pet hero of Mommsen's or Froude's thrilling stories, but the Caesar of that unbiased history that asserts, "Few men, indeed, have partaken as freely of the inspiration of genius as Julius Caesar; but few have suffered more disastrously from its illusions"—that Caesar, led on over by his flaming dreams of self-exaltation, one short year after the battle of Munda, miserably perished by assassins, the majority of whom were his friends who could justify the bloody deed at the bar of impartial history on the plea that in view of Caesar's dreams, this murder was the best service they could render both Caesar and the world groaning under his colossal egotism.

We exhort you on the contrary, young men, like Joseph, yield your dreams, hopes and aspirations unto the Will of God, that they may be purified and ennobled to Heavenly vision, even the Vision offered you by Jesus Christ as He offered it to Paul. Like Paul, be never disobedient unto it, but loyal and faithful even unto death. And whether you shall attain the splendid outer earthly success of Joseph or the apparent outer failure of Paul, like them both in Eternity's radiancy, you shall receive the crown of everlasting life, pledge of your victory of faith overcoming the world, "the crown of righteousness which the Lord, the righteous Judge, shall give you at that day, and not to you only, but to all them also who love His appearing."

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Sunday, May 26, 1912, by GEORGE H. CORNELSON, D.D., Pastor First Presbyterian Church, New Orleans, La.

Matt. xx:27: "Whosoever will be chief among you, let him be your servant."

Many lofty eulogies have been pronounced upon man by orator, poet and sage, but the only true aureole around his brow is the call of his Maker to look up, not down. Was not this the unconscious inspiration of that brilliant race, the Greeks, when in naming man they called him "Anthropos," the up-looking one? For man only of all God's creatures upon earth aspires. He cannot rest content with any present state or achieved result. He must have more; he must climb higher; he must ever strive to reach further. There ceaselessly surges within him that fervent desire which finds its expression in Browning's audacious alternative, "Ah! but a man's reach should exceed his grasp, or what's a heaven for?" And true it is. "It is not what man Does, which exalts him, but what man Would Do."

In achievements, acquirements and possessions, the normal man never knows the meaning of the word, "Enough." Above all the clatter, noise and din of the outer world, the inner impelling cry of his soul rings loudly and clearly through all the chambers of his heart. "More, more; higher, higher!" It is this buoyant element in man by divine fiat which gives him his facile dominion over "every living thing that moveth upon the earth," this which has made him master of nature's mighty forces, and elected him arch-wizard over her great mysteries.

This principle of aspiration is woven into the very fibres of man's muscles. It is mystically mingled with the electric fluid of his nerves, cunningly wrought into the labyrinthical convolutions of his brain. Is it not positive pain for

the healthy child to be still? Does not warm-blooded youth feel that to stand at ease is to slip backward? And man grown knows that to rest is to rust. "Onward, Onward, Upward!" thunder all the throbbing energies of body, mind and spirit. So Tennyson boldly but truly sings, "Whatever crazy sorrow saith; no life whereof our nerves are scant, O life, not death—for which we pant—More life and fuller —that we want."

And amid all the glad tidings brought our restless race by the glorious gospel of the Son of man, none has smitten the harp of hope to higher music than the heart-thrilling, soul-filling paean, "I am come that they might have life, and that they might have it more abundantly." As some one wisely asks: Is not this law of aspiration the very law of spirit—the native ecstasy of the living soul? Not to be checked in the springing career, it leaps exultingly from achievement to achievement, from discovery to discovery, from height to height—newer, vaster realms ever hailing —larger, grander truths ever beckoning, imploringly in the dim distance—a universe ever opening and expanding before, and above all, that voice still crying, "On! On! On!" Tho' the clay fall from the soul's struggling powers, "On," tho' the spirit burn thro' its garments of flesh as the sun thro' mists—"On! On!" "Along the line of limitless desires." "For since our dying race began, ever, ever and forever, was the leading light of man." The Good, the True, the Pure, the Just, take the charm "Forever" from them, and they crumble into dust.

Let us beware, then, the meticulous mistake of denouncing unqualifiedly this mighty motive principle of our nature. Surely, if, as Revelation declares, we are created in God's image, and every attribute of the soul is but a dim reflection of some attribute of the Deity, man ought to aspire. We heartily subscribe to the ringing dictum of the sainted Palmer: "Unless man extinguish within him all the fires of a true and generous manhood, he is bound to lift himself from grade to grade, until he attains the highest ideal that ever passed thro' the halls of his thought." This word of God assures us that we shall be at last the peers of the

angels in the grand courts of eternity—that the redeemed in glory shall stand nearest the adorable Redeemer in the crowning day of His triumph. "Ye fearful saints, fresh courage take." The Bible pictures the glorified saints as teaching the angels themselves how to praise the God of our salvation, in that "seven-fold chorus of harping symphonies and hallelujahs," the apocalyptic forenotes of which John on Patmos heard. Utopian as it may now seem, divine inspiration certifies it, from these human lips shall swell the notes of that new song around the glory throne which no creature is able to learn save those who have had the experience of sin and the experience of the redemption from sin. Say what we may, the startling high call from the throne itself, "Be ye perfect, even as your Father in heaven is perfect," is at once the noblest honor and the loftiest ambition ever sounded within the soul of aspiring man. It is right to acquire. The soul must aspire.

This supreme right is duly recognized in the words of our text, taken from the lips of the meek and lowly Nazarene, Master of men and angels, and the Great Teacher of the mysteries of God and Man. "Whosoever would be chief among you." We may aim high then, He does not forbid the highest. We may aspire to be chief. It is manlike, aye, it is Christlike. Let no one, then, hurl his reckless and indiscriminate denunciations against this elemental principle of our being. There is a laudable ambition in man; nor will we term it with mighty Milton, in his melodious Lycidas, "the last infirmity of noble mind," but we will honor it as a virtue, the legitimate and necessary energizer of the soul to its proper nobility.

Yet, while treasuring this right to aspire as one of the choicest native prerogatives of the soul, we should but prove ourselves unworthy of its possession did we not hasten to understand its true end and accept its necessary limitations. This is just what the Master is here emphasizing upon the thought of His shortsighted, small-minded disciples. "Whosoever would be chief among you, let him be your servant." There is direction for you! There is

scope for you, measureless endeavor! He declares the one true end of ambition is to manifest the glory of God, in lowly, unselfish, suffering, if need be, service of one's fellowman. That, therefore, any eminence of chieftainship worthy an aspiring being consists in the will and the ability to minister under God to one's fellowman as one's brother. "Who best can suffer, best can do; best reign, who first well hath obeyed." There is nothing more obvious than that this crystalline conception of ambition is unpainful conflict with the principles, precepts and mottoes common among men as the rules for attaining success and eminence. Nor does the Great Teacher ignore this conflict. He rather draws it out to vivid detail. "Ye know that the princes of the Gentiles (those who hold the chief places in this world) exercise authority upon them. But it shall not be so among you (who seek life that is life indeed); let Him be your minister. And whosoever will be chief among you, let him be your servant." How clearly we are taught here that these mighty motive principles, aspiration and ambition, have been sadly and madly perverted from the high end of their creation. Ambitious men have been too often those who seek the wrong ends in life, and who strive after their false goals in a spirit which characterizes not men, but demons. A spirit expressed in the Satanic sentiment, "To reign is worth ambition, tho' in hell," Aye! "Better to reign in hell than serve in heaven." These men seek the chief places in the kingdoms of this world, as their all in all—kingdoms of human government, of politics, of society, science, literature, art, commerce, even the church itself, and these chief or soft places are desired in order that all position, fame, power or emoluments that may be so attained shall be used in compelling their fellowmen as subjects to serve the exalted possessors. Such ambition, its end and every means used for the attainment of that end, all savor of baneful selfishness, gross or subtle. The all-absorbing, ever-pressing questions to this ambition are "How may I compel men to serve me? What means or measures can I employ to persuade or force men to minister to my personal interests? The highest law recognized is, "Might

makes right," and the rule meritriciously exalted as golden is, "I, physically, financially or mentally can, therefore, I morally may."

Now, in radical and utter contrast to this greedy, grasping and cruel realm of earthly ambition, Jesus Christ sets up the kingdom of unselfish heavenly ambition, the Kingdom of self-sacrificing service, and declares it to be the true Kingdom of life, for it is the Kingdom of love and God. And God is love. Here, mercy is the prevailing spirit. The harsh, hard rules of selfishness are reversed. The strong are to serve the weak, the wise are to inspire the simple and foolish, the learned are to be light to the ignorant, the wealthy are to spend and be spent for the poor and needy, while the high everywhere are to stoop, that the lowly be lifted. Thus all talents, powers, possessions and opportunities are owned as gifts from the Great Father of all, fitting the recipients for loving, saving service in a sinning and sorrowing world. "And whosoever would be chief among the subjects of this Kingdom, must be servant of all, even as the Son of man came not to be ministered unto, but to minister, and to give His life a ransom for many." The King Himself becomes the greatest servant, lovingly steps from the highest to the lowest, and moves, however majestic in spirit, thro' all the ages and climes of His realm, the meekest, lowliest and gentlest of all. His is the example by word, deed, life and death, in humble, loving service, as by His grace, strength and sympathy, He lifts a ruined race, man by man, from hate and pride to righteousness and to love.

In this age-long, world-wide service Jesus would have all men aspire, seek to be great in this Kingdom of God, which is the sphere of mutual helpfulness and of reciprocal love. Be ambitious for the distinctions and honors that are to be won by doing good to others. For the seats on His right hand and on His left are reserved only for those who follow most closely in His blood-stained footsteps, as He toils upward under His cross to His crown.

Alas! the world has been very slow and reluctant in accepting this grand teaching and sublime example. They

are so high, the groveling world is afraid of them. They are so unselfish, the calculating world prefers to admire at a distance. But, however the sordid world chooses to regard them, the men of the clearest eye and biggest heart of all the ages, as well as the master-seers of our time, in one chorus, swear that what this world in all its ignorance and woe, in all its cruelty and sin, most needs is a practical, every-day acceptance of this Teaching and Example. And if the history of our so-called Christian Era utters one articulate sound, it declares that there has been no movement for the betterment of mankind, no reform for the uplift of humanity, no advance in true civilization—in one word—no lifting of men from their lusts and lies, but what has had its life and power in the teaching and inspiration of Jesus. Slowly, but surely, too, this truth is gaining sway over men's minds and hearts. However short of the practice of it, wide is the profession of it today. Our leading scientists assert that their tedious research and toilsome labors are in the service of the masses. The authors of our best books declare that their truest inspiration is the aspiration to enlighten, instruct and wholesomely amuse mankind. Our captains of industry plead that their highest ambition is to spare the waste and conserve the toil of their fellowmen. While in the reeking domain of politics it is today universally conceded, "a public office is a public trust," and the private citizen is the real though uncrowned sovereign.

The world is thus gradually waking up to a realization of the truth long ago taught by the lowly Nazarene, that honors, gifts, favors and fortunes, indeed, all the marks of leadership, are in the wise and gracious purposes of God, but endowments for service, and that this service is not for self-aggrandizement, but for the betterment of man.

And yet, however we may rejoice that this truth is gaining a wider and deeper appreciation among men, it is no pessimistic plaint, but a sober admittance of stern fact, to confess that even yet it is very far from receiving that glad universal sovereignty which it so richly deserves, and which a toiling, sorrowing humanity so sadly needs. Even

in this second decade of the twentieth century, since the advent of the God-man, upon all the walks of life, the old, pernicious creed of self-seeking holds entirely too general a sway. Our industrial life, which possibly offers the justest picture of our present civilization, is far too intensely marked as a furious race or a determined scramble for the successful few. The rich and well-to-do, with shining exceptions, jealously cling to their wealth, the means too often of a merely selfish material enjoyment, as if their very life did consist in the abundance of things they possess, and not in the opportunity and privilege of doing good to others. They strive and strain and struggle for these riches with an industry, a perseverance, a forethought, which could be justified only if a man could live by bread alone, and not by every word which proceedeth out of the mouth of God. On the other hand, with the poor, the unskilled and the ignorant, the case is as bad. Worn and fretted by the apparently hopeless fight against poverty, or driven wild by that envy which ever multiplies wants faster than the greatest progress can supply, the toiling, sweating masses are beginning to turn with a kind of fiendish impatience on all who would speak to them of higher things. Thus, high and low alike are too strenuously seeking the chief or soft places, not that they might the better minister to others, but that the successful few, for only a few can win, might be ministered unto by all, while both the resultant successes and failures intensify the bitterness between the classes.

If I may be permitted to say it in this presence, I greatly fear that in too many quarters even the present general enthusiasm for education is deeply tainted with this crass selfishness. Too often has education been proclaimed a mere discipline for body, mind and spirit, in which our boys and girls are to be trained in just those methods and principles that will most quickly and surely raise them to those places where they can command and compel the abject service of their fellows. Too insistent and widespread the rally cry for education has been, "Send your children to school, or they will become the hewers of wood and the

drawers of water for the next generation." It is true that education does deliver from the bondage of manual labor, the slavery of muscular sweat, but it is just as true that he who seeks an education solely for the purpose of escaping hard work with his hands will thereby rivet upon his mind and soul the subtle fetters of a far more galling and degrading slavery. No! Education should be that discipline which trains the whole man for the best work he can do in the world for the world, with God over all as Father, and man at his side as brother. And if then he find his powers appoint him the lot of hewing wood and drawing water, he will hew his best and draw his best for the common good; as the world will long stand in pressing need of good wood and pure water.

"Then let us learn to help each other,
Hoping unto the end;
Who finds in every man a brother,
Finds in every man a friend."

In all the wide, profound and varied teaching of the Blessed Master there was no truth which He so emphasized and repeated as this one of lovable, loving labor for our fellowman. And as with prophetic vision He once lifted the curtain of the future upon that great scene in which an assembled universe shall appear in final assize, these are His simple but searching words: "Inasmuch as ye have done it unto one of the least of these, my brethren, ye have done it unto me. Come, ye blessed of my Father, inherit the Kingdom prepared for you from the foundation of the world." "Inasmuch as ye did it not unto one of the least of these, ye did it not to me. Depart from me, ye cursed, into everlasting fire, prepared for the devil and his angels. And these shall go away into everlasting punishment, but the righteous into eternal life."

Can language convey more impressively or finally the importance of having the law of service as the ideal of life's endeavor? If this parable means anything, does it not declare that eternal life and eternal death—whatever they

are, hang upon the practical acceptance or rejection of this law of Christian service? As Lord and King, He gladly laid upon Himself this law. So slow are we to apprehend this truth of life, that in our worship of Him we hold Him as the King, in spite of His lowliness, His suffering, in spite of His humility and friendship of sinners. But not so; far deeper runs the Biblical and heavenly logic. Meek, humble, lowly, serving all, even unto death, therefore, is He King! Who that has ever heard can ever forget the memorable part He bore in that scene of the Last Supper, when saddened over the bitter quarrel of His disciples as to who was greatest among them, He laid aside His garments, girded Himself, took a towel and water, and began to wash their feet. Well might the cry go up, not in protest, but in praise:

"O! blessed Jesus, when I see thee bending,
Girt as a servant, at thy servants' feet,
Love, lowliness and might in zeal all blending
To wash their dust away and make them meet
To share thy feast; I know not to adore
Whether Thy humbleness or glory more.

"Meek Jesus, to my soul, Thy Spirit lending,
Teach me to live, like Thee, in lowly love,
With humblest service all Thy saints befriending,
Until I serve before Thy throne above,
Yes, serving e'en my foes, for Thou did'st seek
The feet of Judas in Thy service meek.

"O blessed name of servant, comprehending
Man's highest honor in his humblest name,
For Thou, God's Christ, that office recommending,
The Throne of mighty power did'st truly claim.
He who would rise like Thee, like Thee, must owe
His glory only to his stooping low."

True exaltation of life and character is to be reached only up that shining pathway of humble, helpful, Christ-like love, and that exaltation shall endure,

"When the sun grows cold and the stars are old,
And the leaves of the Judgment Book unfold."

The culminating evidence that Jesus had come from God and was going to God was in His taking on Himself the form and ministry of a servant. His right to lead is in His desire to minister unto the uttermost. His matchless mastery of men was and is in His complete surrender of Himself to the service of men. Does He not thus uplift the Vision Splendid, for men everywhere, the Vision whence streams the gleam, the light that never was on sea or land, irradiating every common, obscure and otherwise unknown struggler in humanity's welfare with the very Glory of God, and transforming him or her into the Image of the King Himself, who was "among men as one that serveth."

THE VISION SPLENDID

Baccalaureate Address by EDWIN D. STARBUCK, PH.D., Professor of Philosophy in University of Iowa, Iowa City, Ia., May 28, 1912.

There is a classic proverb that says, "Men are born free and equal." It would be as true to say that they are born with the same color of hair and eyes, the same shape of nose, and that all at birth pulled the scales at exactly six and one-half pounds. No, babies are different, and as they grow up they become progressively more so as fast as the accidents of circumstances and the law of divergence in growth can hasten them. Human beings separate, no matter in what vocation or position in life, into three classes: first, a small group, those who have a vision of life and of its possibilities; second, a somewhat larger class who have a vision of life but let it die; and third, those who get no vision and would get none did they live to be a thousand years old. There are men in this state who lead lives as full of regularity, as the days, months, seasons, and years come and go, as the revolutions of the water-wheel in the brook—and whose existence is just as meaningful as that of the wheel and the brook. They do a little work, count one in the census, and at last occupy only a small amount of space when they are dead. There are others who are like the fountains of living water. There are mothers in this state whose lives are as full of mechanism and routine as is that of the clock upon the mantelpiece. There are those on the contrary, who find beauty and joy and hope in all they do. The one class are housekeepers, the other, home-makers. There are laborers who cannot see beyond their finger-tips or the point of the shovel or pencil, while others working along with them can picture the consequences of well-performed duty. There are tradesmen who get from the sight of a shining dollar, its smooth elusive touch, or its clink and cheerful ring upon the counter only a sensuous thrill. There are those who

see in the dollar, as transparent as crystal, a sign of trade, of widening commerce, of stable institutions, of an intricate complexity of human relations—a symbol of the larger life and of eternal justice among men. There are worshippers who have eyes and see not, ears and hear not; and sitting among them those few who find the glory of the Most High reflected in song and sermon.

It is the business of higher institutions to deal chiefly with group 2—those who get a vision, a vision of the truth of science, a vision of the beauty of art, nature, and literature, a vision of the enrichment of humanity through industry, a vision of its purification through the professions, a vision of the dawning righteousness, and then let it fade into nothingness.

In the division of labor in the educational scheme, it has fallen largely to the lot of parents in the home and of teachers in the common schools to dispel the gloom of class three, the plodders, the visionless. To rid the earth of the faulty element in human kind we must begin not with the elders who are set in their ways, but with children at birth, or even earlier. They must be well born and then surrounded with such influences and filled with such enthusiasms during the early years that the prison walls of ignorance, meanness, and self-sufficiency, and small aim do not have a chance to close in upon them.

We have here in this university a select group. The pruning knife of accident and misfortune have cut down its thousands of those who started upon an educational career. The sifting process of exacting standards of efficiency has left its hundreds among the unfit. Dire necessity for food and sustenance has laid its rude hands upon many and drawn them from the search for higher culture. The same sifting and pruning process has gone on in the university for four years. The class of 1912 remains the rare harvest and rich fruitage of the years of labor of solicitous parents and sacrificing teachers—the select, the elect, the hope of the commonwealth.

Still do I say that our concern is with group 2 and not with group 1—one in a thousand who see and know, who

think and act for the other nine hundred ninety-nine. Far be it from me to raise the suspicion, out of deference to the set of statistics on the rarity of great talent, that any member of this distinguished class is less than a genius with an assured future. That would ill befit the courtesy of the occasion. But if you are all geniuses, then the university does not, in the first place, exist primarily for you. Particularly if you *think* you are of the elect, you are easily beyond the pale of our ministrations on this eventful day. It is the function of the university to break up the ranks of group 2 and pass them over into group 1. This institution exists for all. It must assume the task of taking any healthy minded and right hearted man and helping him to discover himself and also to discover a world in which he is going to live and of which he is going to be a part.

You are of group 2 largely by virtue of your age and these happy surroundings you have been enjoying. The glory of young manhood is its fine idealism. University life adds fuel to the flame of passion for great things. It is a life of opportunity. During these cheerful, thoughtful romantic four years you have been seeing visions and dreaming dreams, dreams of success, of friendship, of future happiness, of the coming righteousness and peace and good will on earth. From this vantage ground it looks easy to be a noble statesman, to be a successful missionary, to redeem unclaimed marshes, to be a doctor with waiting patients, or a lawyer with clients standing in line seeking your valuable services. Today is easy; tomorrow the test will be on. The coming year will prove whether you are destined to be of group 1 or fall back to the level of group 3 or worse. Let me not dishearten you. Many of the visions will fade. Some of them are of the stuff of which dreams are made. Much of youth's idealism is not simply fine, it is fantastic. Youth is filled with undisciplined optimism. The day which you dreamed would be full of poetry radiating from your highly cultured personality will be one of a thousand petty nothings. The folks you would help as a statesman or missionary are sordid. They like penny politics and superstitions better than statesmanship and the higher

life. In business the case is no better. The struggle for life is a tough, brutal conflict more fit for a beast than for a cultured man. Competition is sharp and methods of business and trade are harsh, and if not morally unendurable, they may be to you aesthetically distasteful. A student of mine awhile ago went into business. He wrote me that he must stop this kind of thing and go to teaching. "The golden rule and the ten commandments do not apply to business, and nobody in this jungle cares for the so-called social righteousness. Every man is against his brother. I cannot play the game." "Then leave the bunch, will you," I replied, "to their own devices. Let the devil take not only the hindmost but the whole voracious pack, and then you come over into the ranks of the soft idealists who live in a world of false abstractions." I recall the ambitions of a college mate of mine twenty odd years ago. Nothing seemed to satisfy his craving but to be a power on Wall Street. He confessed he wanted finally to control the situation so that when he spoke the capitalists would sit up and take notice and when he made a deal it would send a quiver and a shock through the business houses and banks. Well, he is now a high school teacher at a modest salary, and Wall Street has to worry along the best it can without him. Another college mate I recall, a man of recognized power, who wanted to be a social, educational, and political reformer,—was one, in fact. He planned to be a professor of social science and then a statesman. He took as a stepping stone the superintendency of schools in a large city. There were politicians in the school board whose enmity he won because he scored their petty favoritisms and immoral transactions. Scores of teachers were against him because he could see a century beyond their small conventionalities. He lost his job. He became a tutor of boys to earn a livelihood. The gap between his own ideals and the small-mindedness and mean emptiness of the cheap mind of humanity widened into a chasm. He became a pessimist, then a suicide, and the mass of cheap humanity goes marching on. Yes, many of those ideals are domes in air, are castles in Spain. They will tumble or crumble, and you may be dwellers of huts

and hovels. Some visions of beauty will darken into the semblance of mere illusions. Then will come the wearisome plodding on, and finally a dull pessimism. If so you will belong not to group 1 but to group 3 or worse; for these move along complacently, innocent alike of life's higher choice and of its tragedies, while you may suffer the pain of sorrow and defeat while looking up to a heaven of possibility unattained and unattainable. It may be your doom to share the mingled hope and despair eternal of Sisyphus with his stone, or Ixion on his wheel, or to be chained with Prometheus while the proud bird of freedom and power gnaws without ceasing at your vitals.

Would you share with me a picture of the fate of group two as set forth by one of our greatest writers.

A TRAGEDY IN FOUR ACTS.

Author—Wordsworth, sometimes called a poet; also a prophet; on occasion a dramatist, often a tragedian.

Time of plot—Any time.

Place of plot—Scene laid in Florida or anywhere else.

Length of narrative—Nine lines long.

Length of time covered by the plot—The entire span of a human life.

ACT I.

Scene, a nursery; a mother is sitting watching the innocent play and good cheer, the graceful movements and speech, the tender affection for its pets, of a little child. At a short distance is the father watching, with glowing face and throbbing heart, the mother and child. A Bible is on his knee, open at the story of a dramatic incident which ends thus: "Suffer little children to come unto me, and forbid them not, for of such is the Kingdom of heaven." The mother speaks:

"Heaven lies about us in our infancy."

The curtain falls.

ACT II.

Seven years later. Scene, lawn of the same house. On the far side is our lad, now a boy of nine, busy with others

of his own age at their games of marbles, ball, and croquet. At one side and in front are the parents, one crocheting, the other reading. Both occasionally look at the group of boys and listen to their mirth. Now and then a sharp word rends the air like an angry lightning flash. Once our lad stops to listen to a bird singing in a nearby bush, and so forgets himself that his mates must call him back again into the game. The father watches the lad with pride, but his quick eye notices that occasionally he plays marbles for keeps, wrangles for a choice position at the ball game, and slips his croquet ball all unnoticed by his opponents in the game to a better position. The lively intuition of the mother caught the boy's enjoyment of the bird, and her heart fused into his as she sees him for a moment gazing dreamily and meaningfully at the radiant colors of the setting sun while the eyes of the boy seem to wander on for a single moment to the infinite depths beyond. The father speaks:

"Shades of the prison house begin to close upon the growing boy."

The mother replies:

"But he beholds the light and whence it flows.
He feels it in his joy."

The curtain falls.

ACT III.

Ten years later. Scene, two adjoining rooms in the same dwelling, a living room in which are sitting the father and mother, and the library cut off from the living room by folding doors which now happen to be open. The son is now in college, and the library has become his workshop and his undisturbed sanctum. He is sitting at his desk. On the desk are pencils, a collection of pipes, and books, and books. At the bottom of the stack of books on the left farther corner of the table is a Bible, rather new looking despite its age, and but for the solicitation of mother's dust cloth would be dingy, though not from use. On top are some novels, Adam Bede and Queed, the latter opened face down at the incident where the hero of the story refuses the

assistant editorship because he can brook no compromise with principle. Lying near is a history with the book mark placed at the story of the failure of the Crusades, and the rediscovery of himself by himself of the man of the pre-renaissance period. There is also Plato's Republic lying open at book 8. Yesterday the class was studying book 7, the lecture of the Cave—the slavery of the soul to a world of sense and the possibility of a "birth in beauty." The young man is dreaming, with his body inactive, still every line of his fine form, each lineament of his face shows tension. Even his pipe has now a respite and lies coolly on the table. His blood runs hot; his face is suffused; his eyes are fastened outward and up. He sees nothing, everything—the movements of history with its complicated plot and its great characters, like the actors in a drama, the conquering souls, wisdom triumphant, beauty unsullied—*himself* not an atom now, a macrocasm, a cosmos.

The father and mother have been talking quietly and earnestly upon their one great theme. The lad has grown so different now. The old things no longer interest him. The world happenings in little Judea no longer move him. The mother pleads his case. She says:

> "The youth who farther from the East
> Must travel still is nature's priest,
> And by the vision splendid
> Is on his way attended."

The curtain falls.

ACT IV.

Twenty years later. Scene, a more or less comfortable room in a more or less respectable hotel. The hero of the play sits alone. The father has long since paid his final tribute to the Great Mystery. The mother has gone to live with a kindly relative. Our actor has finished a busy day of business. He has made three important deals during the day. One, as he learned finally, of doubtful advantage to himself, while the other two were lively, even racy; the last indeed was snappy. Still, he is not happy. He sits with elbows on

knees and head on hands, moodily. On the morrow he is to conduct a Bible class of traveling men. It had been built up to an attendance of one hundred fifty through the popularity of the leader who died six months ago. Our hero was chosen as leader of the class by members of it who knew so well his warm enthusiasms of earlier years. During the half year the curve of attendance has dropped consistently. It now stands at about seventy-five with a sharply downward proclivity. The topic for tomorrow is Steadfastness, illustrated by the perseverance of Paul. Even though he has thought about the topic during the week it has seemed insipid and cold. Steadfastness—in what? That Paul, what was it that he was always so fiery hot about anyhow! To get on! Is not the simple condition of that just coolheadedness, common sense, acumen and a steady judgment! Still some buried ghost rises up within him to mock him. It speaks in sepulchral yet sardonic tones about enthusiasms, ideals, the coming righteousness, the eternal values! Memory turns backward to the hot blooded enthusiasm of his college days. He recalls a vision. He casts his look upward toward the far away heavens of old memory. There is no illumination there now. Only a dark gray hue. He soliloquises:

> "At length the man perceives it die away,
> And fade into the light of common day."

End of the final act.

The play is done. A tragedy? Yes, it witnesses the death, not of the body, the passing of the human form; that is no hopeless event, no *great* tragedy, if this world of values, these struggles, these fine ideals which make up the *real* self are tempered with a serene confidence that these loves and hopes will find their fruition in the love of others, will be conserved in the real life, will be caught up somehow in the life of God. No, this before us is a real tragedy, the death of a *soul*, a faithful picture of the inevitable fate that awaits each member of group 2, unless he can save himself or be saved from his lower self. Not a purgatory this, but

an inferno from which the soul looks up at heights not unscaled but unscalable, with a wide gulf between.

Far other would be a picture of group 1, the class to whom you may as well belong. Had Wordsworth chosen to write in the brief lines not a tragedy of inferno but the happier destiny of healthier souls, the first three acts would have remained the same. The text of the drama would have read as before, and the setting identically as we have witnessed it.

> "Heaven lies about us in our infancy.
> Shades of the prison house begin to close
> Upon the growing boy.
> But he perceives the light and whence it flows,
> He feels it in his joy.
> The youth who farther from the East
> Must travel still is nature's priest,
> And by the vision splendid
> Is on his way attended."

Act IV is now wholly different. Witness it.

The scene is in a library at home in the late hour of the evening. The hero, now a father, sits alone. The children, who after supper must have a romp and game and some songs, have long since been tucked in and are sleeping the sleep of innocence. They were lulled to sleep by the mother's voice, sweeter to the father's ear than any symphony. It is a good time now to think through the busy day and take a look ahead to the labors of another. His fancy, knowing no limitations of time or circumstances, wanders back to youth and then on toward the eternally better, and back and forth across the luscious present. He recalls the hot visions of youth. Yes, he was a dreamer then, he dreamt of power, of wealth, of social success, of philanthropic enterprises, of himself, singularly as the benevolent dispenser of blessings. He remembers that earlier scene when fancy burst its bonds and a vision seemed to break from the skies with its luminous beckoning lights. His eyes wander skyward for a moment, to fall as quickly, while a fresh smile of satisfaction flashes across his face as

he turns from the fleeting fancy to the clarified fact, from the world of illusion to the blessed reality. He soliloquises:

"At length the man perceives the light not far away,
It *blends* into the *life* of common day."

End of the play.

A tragedy or a drama! You may have your choice. The vision need not die. It was not so with Michael Angelo. Disappointed there in Florence with the artificial restrictions of the powerful Medici family, he left them. He followed the voice of the higher ideal. At the age of seventy-one, when most men look for relaxation and rest, he was made architect of St. Peter's at Rome. During these last eighteen years he brought to glorious completion that crowning piece of architecture of the Western world. So it was with Browning; ever a fighter, through faith seeing victory beyond apparent defeat, he conquered and achieved even to the close of a long life. His lines on old age are but a statement of how he lived,—

"Grow old along with me,
The best is yet to be,
The last of life for which the first was made.
Our times are in His hand
Who saith, 'a whole I planned,
Youth shows but half; trust God: see all, nor be afraid.'"

No, the vision need not die. It did not with Tennyson, whose life moved onward like a widening stream that passed out not like a stream losing itself in the desert, but into an ocean of reality, "too full for sound and foam." So it was with Aristotle, Cicero, Bismark, Senator Hoar, with Edison, Helmholtz, and Wundt, with Milton, Holmes, and scores of others,—the few among the many, you will say. Yes, the few to point out the possibility to the rest of us. The door of opportunity still stands wide open before you. We are creatures of law and precedent, you believe. In a measure, that is true. Hundreds of doors have been closed in your faces and barred securely behind you as you have moved on through life up to the present moment. The choice of

your parents and of a country to be born into, that is fixed beyond recall. That you had to be a boy and not a girl, do not worry over that. Even though the gentler sex should still persevere and capture all the spoils and prerogatives and reduce us still more to a life of slavery, you are doomed to masculinity. The kind of education you *have had*, the sort of grades you *did get*, the particular pupils you *did meet*, and a thousand such, will remain fixed to eternity. Each day of your life has had its diverging paths of opportunity inviting you to enter. These are all walled up now. Yes, a universe of *law*. But you have been learning and may see it more clearly as the years go by that progressively in this developing world the interplay of the seemingly fixed laws flows through the human soul. It is in ourselves and not in our stars *if* we are underlings. I would have you believe that your best thought is the thought of God getting itself expressed; your clarified soul is the *universal life* carrying itself out into action. Therefore, seize the present and sanctify it. The door of opportunity stands wide open before you. You may still, no matter what your calling in life is to be, stand among the conquerors. You may even without wealth or other happy circumstances that now surround you escape the tragedy of living on while all life's values and glories have fled—a fate "more sorrowful than the tragedy that kills."

But you have been asking, "How is the thing to be done?" If only one among the many gains the true and lasting vision, how may I know that my light is not a fleeting glamour? I should be remiss, having watched for some years the game of life and having played at it myself in a small way, did I not try to give a few words of suggestion and admonition. There are no rules that will apply to all persons. There are, however, some simple precepts that will apply in a general way to every person. Let me mention some of the most important of them, and then I have done.

1. *Follow the lead of the things near at hand.* It is a mistake to be looking always for a startling vision out of the high heavens. Those lurid gleams and glimmerings must either be forsaken entirely or must "blend into the light

of common day." We must work as well as dream. The old story goes, true to life, of the youth in the stress of self-discovery that is normal to early manhood, who had a vision burst upon the clouds. He was in the fields plowing, unwillingly, and wrestling with the "problems"of life and destiny. There shone before his feverish brain a light. The sky was aglow with flickering and evanescent splendors. Three huge golden letters seemed to shape up out of the depths of space: G. P. C. Yes, he thought he knew at last: "Go Preach Christ." He extracted himself hastily from his present humble calling. He went to college and later entered a theological seminary. He learned to build sermons, by rule, and became versatile in proofs for God's existence. He knew four of them, with a possible fifth; could demonstrate the freedom of the will, and was an expert in the higher, lower, or any other kind of criticism. He graduated and took a charge at a country parish. The message—well, it was still-born. It never breathed the breath of life. The congregation dwindled, and the salary likewise. Our messenger of the Most High was compelled to cultivate the garden and small field belonging to the parsonage in order to supply his natural wants. He had by luck at college unconsciously observed some points from the "aggies" on soils, plants, and their cultivation. His potatoes were second to none, while his cotton was the marvel of the entire neighborhood. He forsook the small remnant of his "charge"—that had not already forsaken him. He tendered his resignation, which was politely accepted. He secured larger holdings, raised more extensive crops, and by experimentation learned how to ensconce King Cotton upon his throne. He taught his neighbors likewise how to double the size and number of heads of cotton. Being well beloved for his real, though not for his theological self, he was able to spread by his genial presence sweetness and light upon all about him. He bethought him again about that marvelous display in the heavens of years ago. "Now I see," he mused, "Those blazing letters meant 'Go Plow Cotton,'"—his true vocation, aye, his mission—which he had forsaken now for seven long years. It is as possible in this new kingdom of heaven on

earth, in which we have come, to till and plant and reap, to the glory of God as to compose sacred music, write volumes, or preach sermons.

In the early part of last century on a farm in old Virginia lived a young man, McCormick. He was reaping wheat. Like the dozen other men with whom he worked, he seized a handful of stalks of grain in his left hand and deftly cut them off with a sickle which he held in his right. Unlike those around him, he had a lively though accurate imagination. He was a dreamer; he saw a vision—of a machine drawn by horses cutting down the long swaths by a steady forward motion, with one man reaping not an acre or two a day by hard labor, but eight or ten easily. Two years the lad worked with hammer and anvil, latterly in his father's barn to escape the ridicule of his neighbors. Then came the glad day of hardly won success when the unsteady beckoning ideal became a reality. Behold a reaping machine. The vision came then of a trapper and a self-rake. McCormick went westward to explore. He saw the wide stretches of fertile plains. These, he said, must yield bread for the millions. He saw in imagination the happy homes, the fields, the sinews of trade of a prosperous people. Then came the self-binder and shocker, and then the call into the unsolved mystery; but the perfecting of the garden of earthly beauty has gone steadily on.

Of like mind was the vision of Watts, watching the tea-kettle, of Whitney tinkering with a cotton gin, of Edison patiently studying the glow of the carbon of a cotton string burned out on a shovel when he charged it with an electric current, of Roentgen studying the new type of efflorescence in his tubes inviting him to discover a new world of X-rays, of Clara Barton catching glimpses of how to perfect the humane aspects of government. Most of the good things of the world have come through minds who are active in the world's work. It is not the idle dreamers but the true workers who have caught the true visions.

So I say, work, work! Work, in shops, and counting houses; work in the laboratories, grind at your studies, labor at the law, study at the forms of art expression. Do not look

for signs and wonders. If any man willeth to do His Will, he shall know and understand. Get into the spirit of this marvelous cosmic program, and then if your imagination is properly disciplined you may become a prophet and not a dreamer. I would have you catch a vision of the new Florida, of the new America, with every residence a villa, with every farm a garden, with all its people industrious and happy, with its amusements elevating, with its sanitation perfect, its politics clean, with its literature the highest —a garden of beauty and righteousness. It is no idle dream, and you may have some part in it if you will.

2. Our second principle is *Persist.* Ten thousand suspected in the fifteenth century that there was a western route to the Orient. Columbus had the courage to try it out. Hence are we here. Was it worth while? Some days ago a distress signal flashed across the wireless space at sea from a sinking vessel. A miracle, you say. A friendly steamer responds and succeeds in rescuing from imminent death seven hundred precious lives. Did it pay? Marconi was only one among the many a while ago who were tinkering with wireless telegraphy and saying that somehow, sometime, this curious phenomenon would find its use. Marconi had the tense nerve to say within himself, "This mysterious energy *shall be* harnessed as a subtle and nimble messenger in war and peace." Thirteen long years did Newton cling to his problem of the relation of distance and mass of moon and earth until his fancy pictures of the law of universal gravitation was crystallized into the form of a changeless law. Most dreams fade when they face the clear light of day, and most schemes are but the dreams of waking life. They must be tried out in the school of experience. Will the schemes work? That is the question. I recall with some amusement having once unburdened to a member of the Westinghouse firm, three different methods, perhaps inventions, that my own fertile genius had concocted for saving the energy used in stopping a railroad train and transmitting it for use later in the starting and in up grades. That master mechanic was a cultured man and so listened courteously. He said mechanically there was no flaw. He

assured me that the chances were against its working. He, for example, had had to spend one hundred thousand dollars in testing out an air brake after it was already indisputably perfect from the standpoint of mechanics. Will Nietsches' doctrine of the "super man" work in a busy democracy? Will Bernard Shaw's stalking egoism work in a drawing room? Nothing but time and experience will tell, but somewhere among the hundred schemes and dreams is one true vision—the successful appliances of an Edison, the noble music of a Wagner, the true insight of a Madame Curie. Cling to it, cherish it, try it out! Work! Persist!

3. The third principle: Nourish an *honest wish* to see and know, to hear and understand. You must meet a vision half way. Indeed, you must do your half first. If you are satisfied, then yours will be the fat-heart, then yours the span of indifferent enjoyment, and the tale is told. But given a blessed discontent, a lively taste for the eternally better, then you will have a part to play and a worthy one in this glorious drama of human life. Blessed are they which do hunger and thirst after anything, for they shall be filled with it. Given time enough, every honest wish, which is at the same time a prayer, will find its fulfillment. Helen Hunt Jackson longed as a girl to set forth the injustice that a heedless white race had done to the Indians, driving them back and back out of a country they had supposed to be their own. After many years of thinking about it and aching in silence, at length she wished to write a novel setting forth in living form this stupendous solemn fact. The plot would not live. She moved to California and there saw afresh the human tragedy. Her plot was still lifeless. One morning near the town of Whittier she awakened, and lo! A vision! It was one she had never seen. Standing out before her mind in clear relief was the plot of Ramona, fully formed, as it were, in a moment. During the hurried days of writing which followed she was but the recorder of a vision. Still this is not strange, so great a vision. For a time all her being had been dancing in tune to the longing of her earnest wish.

"The thing we long for, that we are,
For one transcendent moment,
But the present, poor and bare
Can make its passing comment."

So it was with Sir Rowan Hamilton, who discovered apparently instantaneously, the quaternions, an important new branch of mathematics. Going across Brougham bridge in London this experienced mathematician had a visitation, a vision which came almost as it were like an electric shock. In his own words he "felt the galvanic circuit of thought close and the sparks that fell from it were the fundamental equations" of the new science. He drew from his pocket a note book and then and there he wrote down the fundamental equations for the quaternions, which have remained essentially to this day as he conceived them. The experiences of that precious moment were fruition of the divine discontent of the past years. He had been meeting his problems half way. He says himself he "felt a *problem* to have been at that moment solved—an intellectual *want relieved* which had haunted him for at *least fifteen years.*"

There is something prophetic in the human soul. Its leaning out towards the truth and beauty of the world is not in vain. Work! Persist! Hunger and thirst!

4. The fourth principle, *Be clean!* A true image can never come through a distorted or beclouded medium. The organism as a whole and the brain in particular are the media through which any vision I am to have is conditioned. If the brain is murky through dissipation or gluttony, or disease by foolish abstinence or asceticism, my visions of truth, if they come at all, are certain to be distorted. From a sudden blow upon the head one may "see stars," but in these scintillating lights there is nothing heavenly. The drunkard's excited brain can "see things." Ascetics in all parts of the world have learned the trick of punishing and abusing the body "for righteousness' sake" until the reaction of a strained and fevered organism has projected before consciousness a scene of celestial glory; but there is no record of how these

hot fancies have helped much in the long run in the useful program of the world. The visions of healthy minds, on the contrary, have been building up and out the ideal life of growing humanity.

The human brain! The most wonderful organism in all the world! With its ten million little cells as centers of energy, with its million million threads of connection uniting the organism of billion billion elements into a beautiful unity! What would one not do to make it clean, delicate, healthy, and strong. Give it pure air and sunshine. Feed it with pure food in just the right amount. Nourish it with rich red blood pumped by a heart that moves as true as a Corliss engine. A more wonderful thing still! *A mind* with the brain as a faithful servant that can write a Shakesperean play, shape a national policy, control a university, measure the distance of a fixed star, construct a banking system, unearth the secrets of history and science. What pains would one not spare to perfect and enrich it? Keep it clean!

A while ago in a watch factory I saw a marvelous set of machines. Into the first were fed slender rods of steel. It cut them up into tiny lengths. A second automatically caught these one by one and passed them to another. This one of its own accord turned them down, leaving one end enlarged. A fifth machine cut some threads. A seventh cut a groove across the head. A fifteenth, and behold, watch screws worth dollars a pound! I thought "What a marvel of a mechanism." I tell you of a greater miracle than that —the mind of the man that can create it. What would you think of a man who says, "Now just for fun I shall throw into each of these machines a handful of dirt and sand. How amusing! Hear them rattle and rumble and creak!" Fools that we are and ignorant, what do we not sling into this more wonderful organism! Heaps of food until it groans under the weight of them and must be driven by tea and coffee and spices and tonics. Deluge on deluge of drinks hot and cold, sparkling and clear, tart and bitter and sweet, and all just for fun! I do not say, "don't smoke." I say smoke only so far as it will help. You may be a genius like a Mark Twain and can draw the line against smoking

only at two cigars at a time and none while sleeping. If you are not a genius you *may* have to cut it off altogether. I do not say, "do dot drink intoxicants." Determine that yourself. I say more, do not drink even tea or coffee nor anything else, except just so far as it will help, and help toward the highest. I say simply, be clean, and strong and beautiful within. Blessed are the pure in heart, for they shall see God. For the pure in mind and heart, and they only shall see the truth as it is. Work! Persist! Hunger and thirst! And withal, be clean!

5. A fifth principle, *Be yourself and trust yourself.* The visions of life and duty come singly. Have you considered what an expanse of distance lies between any good mind and the one most like it? There is only one Shakespeare, and there will probably never be another; one Darwin, one Milton, one Luther, one Plato, one Galileo, one Beethoven—each mind a unique personality with a new perspective on life. Agassiz collected several thousand shells of the same variety, but could not find any two alike. It is a law of life that the higher one goes in the scale of development the greater the divergence. Do not dream of the time when you will write like Emerson, or compose like Strauss, or invent like Faraday, or lead an army after the manner of a Napoleon. It will never happen. You may do as well, but the God-life within you will break forth with a new note and fresh message. It is a mark of children and child-like people to imitate. As children nature wanted you to watch and catch the tricks of many masters; hence has she planted deep within you that *instinct* of imitation. Now, the heights of an undiscovered world in art, science, religion, in everything, are calling to you for the deliverance of these pent-up possibilities. Some part of this deliverance can come around through you as a medium. Now is your golden opportunity.

> "The youth who farther from the East
> Must travel . . . "

Was what our poem said. As a nation we are children, mere babes. We look to the East for everything. Our religion from Judea, when that blessed Teacher tried to the

utmost to call each man to himself. Not up yonder, he said, in that sacred mountain, nor over yonder in that sacred city is the God to be found; but here, and now, "The kingdom of heaven is within you." Our eyes are always turned eastward. Our architecture and sculpture are from Greece; our legal codes from Rome; our art from Italy; our science and philosophy from Germany; our manners and styles from Paris; our tricks of speech and the crease down our trouser legs from London! All that is well. But having assimilated our rich heritage, when shall we reach our majority? When shall we attain that state of orientation of self reverence and self dependence, of at-homeness in the world so that socially and nationally we may have other than second-hand reflected enjoyments of the best things of life. That depends upon you and me as individuals. Human history flows through personality. I would commend to you the strong words of the sage of Concord who said to young manhood and to young America: "Insist on yourself, never imitate. . . . . There is at this moment for you an utterance brave and grand as that of the colossal chisel of Phydias or the trowel of the Egyptians, or the pen of Moses, or Dante, but different from all these. . . . . If you can hear what these patriarchs say, surely you can reply then in the same pitch of voice, for the ear and the tongue are two organs of one nature. Abide in the simple and noble regions of thy life; obey thy heart and thou shalt repeat the fore world again." Be yourself and trust yourself!

6. One more precept and we have done. *Give yourself, Lose yourself!* Nor is there any real contradiction between this maxim and the last. You cannot give a dollar and keep it; but you can a life. You cannot keep a life, indeed, without losing it. Conserve your powers and watch them dwindle. Cultivate yourself, even your higher self—consciously, proudly develop it, and feel your friends looking askance and drawing away. Spend your powers and watch them increase. Lead the kindly life, spontaneously, joyously,—and feel your friendships tighten and life expand.

"Shades of the prison house begin to close
upon the growing boy."

The prison walls are the limits of *self*, which close in and make the self*ish* life. Hard, thick, resistant walls they are because of the brute inheritance within us coming up out of that old life of struggle, when self regard was, in the world, the chiefest virtue. There is hardly a crime or heartache that does not spring out of a blind selfishness. Have you ever seen a lawsuit in which the plaintiff and defendant were quarreling because each insisted upon pulling back his boundary fence away from the other to allow his neighbor more room? Did you ever hear of one that grew out of two neighbors each insisting upon dumping under the trees of his neighbors bushels of nice ripe fruit? Did you ever know of a neighborhood fight which sprang up because one of its busy members had been over-zealous in bearing tales of kindliness and self sacrifice? No, there are no crimes and no remorse which pursue the course of the kindly life. On the contrary, there are no crimes and no ills which do not tend to follow like a shadow the footsteps of a selfish life. The vision does not come because of the impenetrable prison walls with their shades. Pierce the shadow! Break down the walls! Lead the kindly life!

A lively use of the imagination combined with a sense of humor ought to help shatter the walls.

"O, wad the power the giftie gie us
To see oursils as others see us."

If we could only get outside ourselves and look back and down upon ourselves from the standpoint of a superior intelligence! Witness a human being putting on airs, proud of his fine clothes, proud of his accomplishments, satisfied with his attainments, quite "out of sight," he thinks himself. Imagine his double only so far away in solar space as Mars, which is only a step, looking back at his first self. Nothing to be seen! That proud universe has dwindled to less than a speck! "Out of sight." Yes, quite out of sight!

And again, do you seek fame? A thousand years from

now, then what remains? There is a name carved on the tombstone; but *who* bore that name? Whose is that hank of hair and handful of teeth? A student in examination was once asked who wrote the Greek Iliad. Was it really Homer that wrote it? He replied that he had given the matter a great deal of thought, and had come to the conclusion that the great work was not written by Homer at all, but by another man of the same name. A life is nothing unless it can attach itself to something that abides. A feverish straining for wealth, fame and social position, the endless succession of morning, noon and night, of spring, summer, and autumn, year in and year out, of the coming and growing and going of lives, like the wavelets on an endless stream; all this in and for itself is as meaningless as the game of the kitten trying to catch its ever just escaping tail. But the least fraction of a life, if only it can feel that it is a true reflection of the Eternal Life, is in itself valuable.

Your *science* has been leading you out of your prison walls into the larger world of realities that are not of your making. Your astronomy, geology, and biology have revealed a boundless order of nature with a stupendous program. Your history, psychology, and language have put you in touch with a world of other persons, with lives as valuable, taken individually and collectively, as your own. You have come to see that the growing world is an organism—each part playing into the whole, and the whole depending entirely upon the behavior of the parts. You have happily had intimations that you yourself are a part organically of a vast order of human life, of plant and animal life, and of the World Life. It has been your right to conceive yourself a part, aye, an important part, of this purposeful, striving, ever perfecting life.

You may imagine how a leaf should say within itself, "I see now, that if I were to become a purely and solely individual thing, I would wither and die. My life is from the plant. My glory is to receive from it and to give back my little part to it in return." You may imagine a rose to come to itself and say "I am not *a* rose. Could that invisible but real thread of connection be cut which unites me with the roses

of last year and of all the years that have gone, indeed, that unites me with the life of all growing things, I would be nothing." You have a right to say within yourselves, "I am an organ of the universal life." "We lie in the lap of immense intelligence that makes us receivers of its truths and organs of its activity." "The Father worketh hitherto, and I work."

I believe that the beauty, truth, and goodness of the world is aching to find its expression through you. Do not enchain it, do not quench it. Open up your minds and hearts to it. Go out from your prison walls and live the life of freemen, which is also the life of joyous sacrifice. Mingle with men and institutions. The stream of reality flows through personalities. Learn their ways, their thoughts, their hopes, their ideals. Enter even into their struggles and tragedies. Having learned from all men, be a man, a nobleman, a freeman. That man only is free indeed who has become a conscious organ for the expression of the life of his family, his community, his state, his nation, humanity, the God-life.

I have tried to say simply, during these young-manhood years of fermenting ideals, let your visions be true and lasting ones. Work; find them in the busy life of struggling humanity. Persist; try them out in the school of long and rich experiences. Hunger and thirst; lean out toward the truth that is trying to find its entrance into your lives. Be clean, a fit medium through which the beauty of the world may shine forth. Trust yourself; your message to humanity will be original and essential. Lose yourself in the larger life; your vision, your message will be a true one only if you are mind to mind, heart to heart with the divine order of things, the blessed world heart.

This today is a happy and important occasion, not simply to you but to the commonwealth of Florida. This is a public ceremony of initiation. Something like this the ancient tribes of the earth have instituted and encouraged, even the savages. Should one go among the Omaha Indians he might see this beautiful picture: Off there in the deep forest, far away from the tribe, seated in the midst of the

hushed silence all around, is a young man of eighteen summers. Eight days has he sat there with nothing to disturb his imagination. Near him is a small bundle of food of which he has not tasted. Two more days he will sit, and maybe four, until that great event for which he has been sent into that solitude shall happen—a vision. A vision of three things he is seeking, himself, the soul of his tribe which shall speak through him to his people, and Manitou, the God of all things. Then will he hasten his steps to his people with his vision and his message, and they will receive him with ceremonies and rites of initiation. This today is an initiation, a commencement. But the life of a white man is a more complicated affair than that of an Indian. Not eight days, but for years you have been sent by anxious parents and by the State of Florida into this sequestered retreat to be alone with nature. But our "nature" includes also *human* nature. During this more or less artificial life of seclusion the State of Florida has sought to keep you in touch with the best minds there are as teachers, as writers of books, and as producers in art and industry; and all to the same end as in the case of our Indian youth. The one great hope has been that you discover also three things: yourself, the soul of your people, and God, the life of all things. And now, those who have watched you so patiently and hopefully, have said you have gained the vision. A happy day will this be for yourselves if you in a spirit of glad cooperation can, by your deepened purposes and stimulated ambition, make it a true initiation, a real commencement. A glorious day is this for this fair commonwealth if it is able to receive you back into itself as master artists. We look to you hopefully. Yours must be a noble part in the building of the new Florida, the new America.

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